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OIL AND GAS

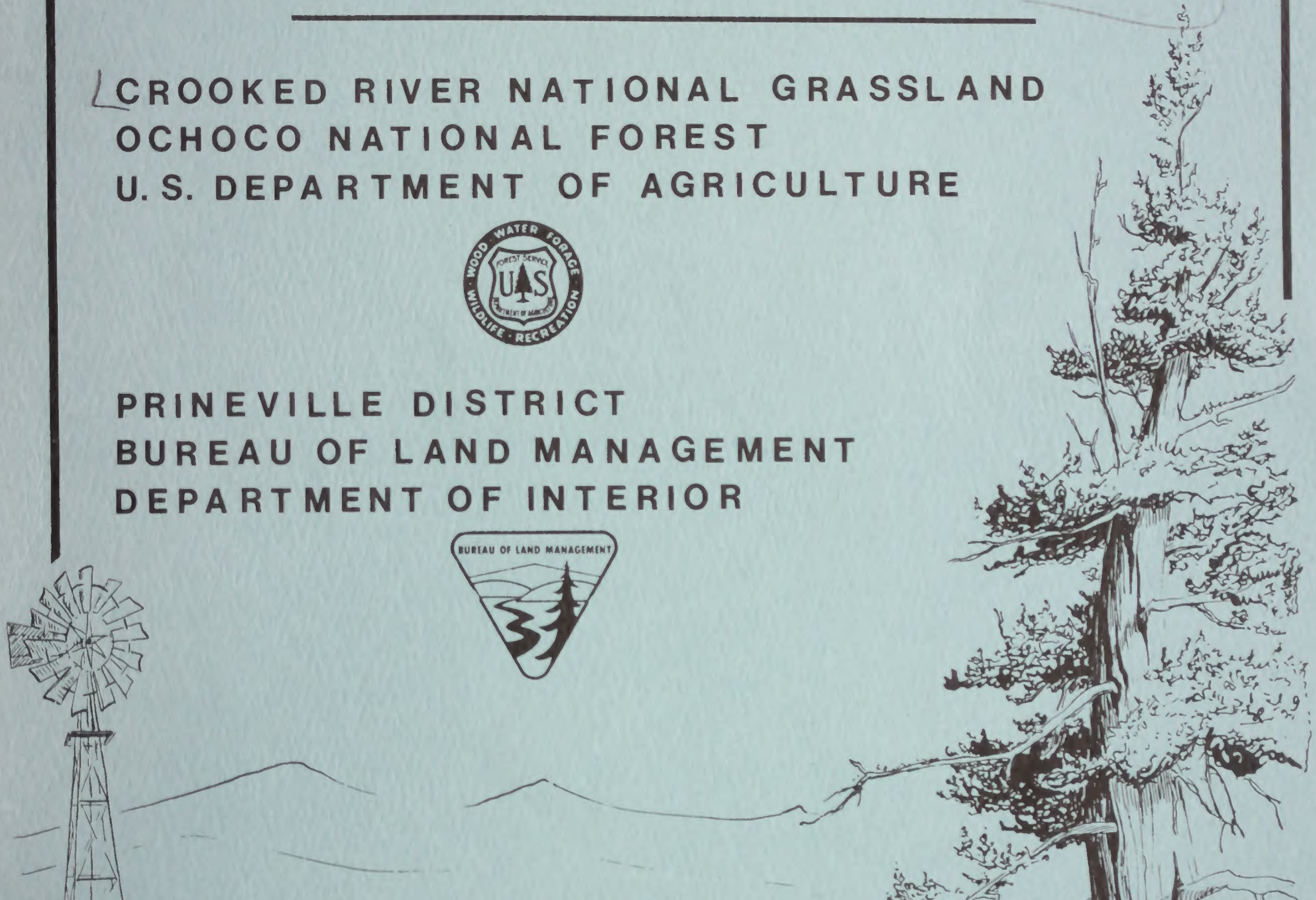
ENVIRONMENTAL ANALYSIS REPORT

*

EAST SIDE OF THE CROOKED RIVER NATIONAL GRASSLAND

CROOKED RIVER NATIONAL GRASSLAND
OCHOCO NATIONAL FOREST
U. S. DEPARTMENT OF AGRICULTURE

PRINEVILLE DISTRICT
BUREAU OF LAND MANAGEMENT
DEPARTMENT OF INTERIOR



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ENVIRONMENTAL ANALYSIS REPORT
FOR
OIL AND GAS LEASING

EAST SIDE
OF THE
CROOKED RIVER NATIONAL GRASSLAND

A Cooperative Effort

Crooked River National Grassland
Ochoco National Forest
U.S. Department of Agriculture

Prineville District
Bureau of Land Management
U.S. Department of Interior

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OIL AND GAS STUDY AREA

EAST SIDE
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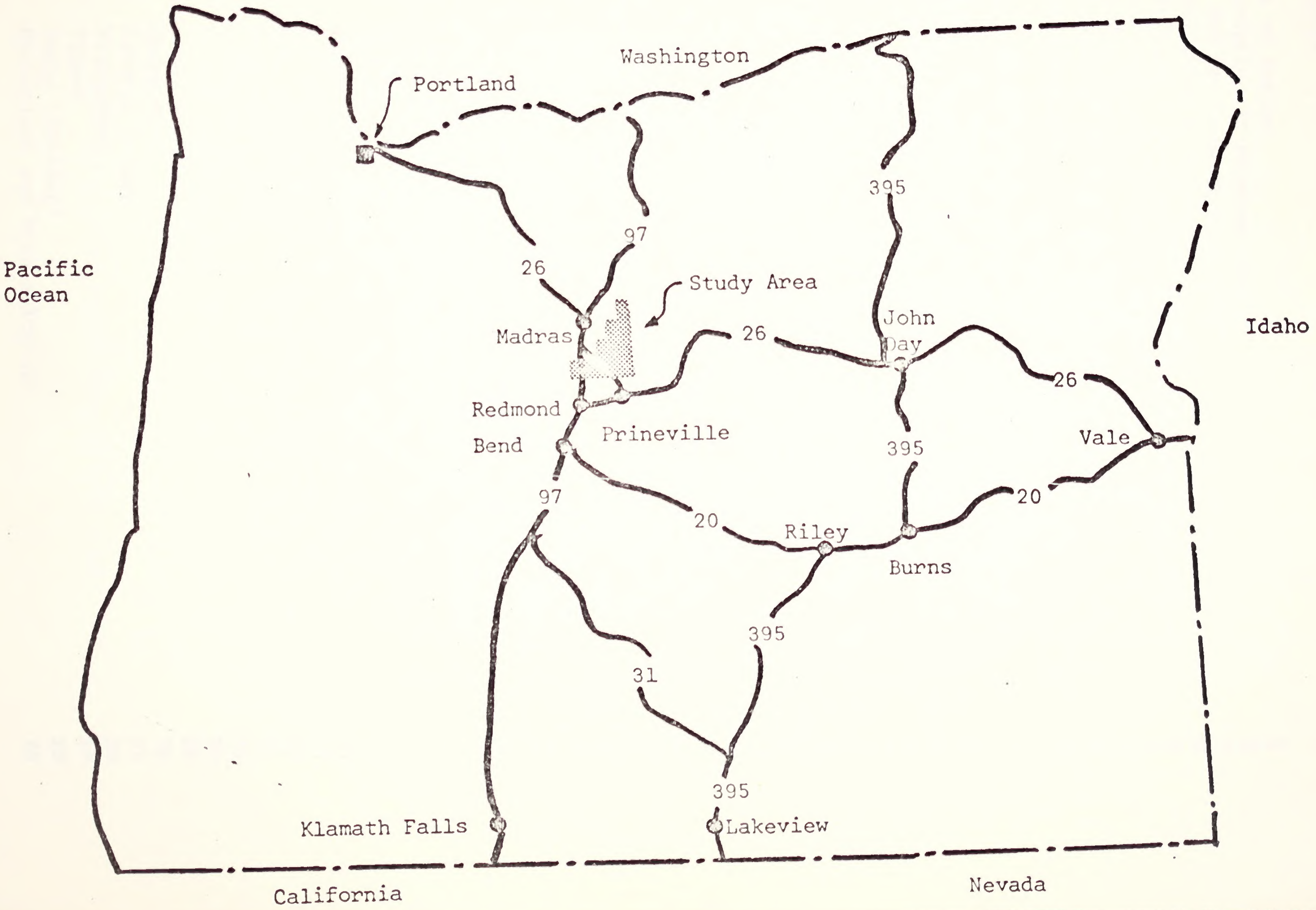

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I. APPROVAL

Report prepared by William Hardt Assistant Forest Lands Staff 4/29/77 Date

Dennis R. Davis BLM Geologist 4/29/77 Date

Report recommended by David McCarahe Crooked River National Grassland District Ranger 5/6/77 Date

Andrew B Bryan Deschutes Area Manager 4/29/77 Date

Glen E. Hetzel Forest Supervisor 5/9/77 Date

On the basis of the environmental process documented by this report, we have determined that a low to moderate discovery will not result in a significant impact on the quality of the human environment nor is it expected to become highly controversial. Therefore, an environmental statement will not be prepared for this proposal at this time. An environmental statement will be prepared with full public involvement prior to exploration and development if a significant discovery (more than 2 or 3 wells per section) is made.

OH Matson 5/11/77
Acting Regional Forester Date

Paul W. Arrasmith 4/27/77
District Manager Date

II. SUMMARY

A. Type of Action: Administrative (X) Legislative ( )

B. Description of Proposed Action - Thirteen applicants have submitted applications for oil and gas leases on approximately 11,560 acres - 11,200 acres of the Crooked River National Grassland, 80 acres of Bureau of Land Management land, and 280 acres of private land. The issuance of oil and gas leases conveys the right to lessee to progress through the five phases of the petroleum operation: 1) Preliminary investigations; 2) exploratory drilling; 3) development; 4) production; and 5) abandonment.

C. Oil and Gas Leasing Procedures - The Bureau of Land Management (BLM) administers federal laws and regulations pertaining to federal lands and on private lands when the federal government owns the mineral rights. The BLM, in conjunction with the U.S. Geological Survey and the federal agency with surface management jurisdiction, determines whether and under what conditions it will issue a lease. The U.S. Geological Survey oversees activities within the "area of operation", those areas where direct exploratory activity takes place, while the surface managing agency oversees those activities outside the "area of operation".

D. Consultation With Others - Letters soliciting comments on the effects of oil and gas leasing were sent to 21 government or quasi-government agencies, 17 organized groups, and the 13 oil and gas lease applicants. Eight government or quasi-government agencies and seven applicants responded to the solicitation.

E. Environmental Impacts and Adverse Environmental Effects - It is anticipated that the preliminary investigation and exploratory drilling phases of the petroleum operation will result in minor environmental impacts while the development, production, and abandonment phases will produce the more significant impacts. All but bizarre impacts to the soil, water, grazing, recreation, scenic, air, wildlife, historical, and archaeological resources can be anticipated and mitigated. However, impacts to the social, cultural, and economic components of the environment are more difficult to anticipate and mitigate - especially without knowing if, or to what degree, development and production will take place.

If oil or gas is discovered, lessees are required to submit development plans for analysis by the U.S. Geological Survey and the surface managing agency. Potential impacts can be determined at this time and mitigating measures can be stipulated.

F. Significant Environmental Impacts:

1. Local, state, and national economies will be affected if a significant discovery is made.
2. Local lifestyles, values, and customs may be influenced if skilled and semi-skilled labor forces move into the area.

3. The tax base may be increased to provide additional public facilities if local populations increase. The increased tax base may remain after abandonment of the oil and gas field.

4. Some intrusions to the scenic resource may remain after abandonment of the field.

5. A major discovery will reduce the United States dependency on foreign oil and gas.

6. Consumption of the non-renewable oil and gas resource is an irreversible and irretrievable commitment of that resource.

7. The removal of oil and gas may cause land subsidence.

G. Land Use Planning - The proposed action is appropriate to the land management objectives as long as it is coordinated with other uses of the area.

H. Alternatives to the Proposed Action Which Were Considered:

1. Deny oil and gas leasing.

2. Issue oil and gas leases with no surface disturbance or occupancy.

3. Preclude surface disturbance or occupancy on specific tracts.

4. Issue leases and operating permits with special stipulations.

5. Issue leases for any area and without stipulations.

I. Recommendation - Issue leases combining alternatives 3 and 4.

On the basis of this analysis, it has been determined that a low to moderate discovery (no more than 2 or 3 wells per section, depending on circumstances) will not necessitate an environmental statement. A statement will be prepared when and if a significant discovery (more than 2 or 3 wells per section) is made.

III. DESCRIPTION OF SITUATION

A. General - The proposed action is the leasing of rights on Crooked River National Grassland (CRNG), Bureau of Land Management (BLM), and private lands to explore for oil and gas and if found, for the development necessary to extract the oil and gas. There are pending applications for approximately 11,200 acres of CRNG land, 80 acres of BLM land, 200 acres of private land with oil and gas ownership vested in the Federal Government, and 80 acres of private land with the oil and gas in private ownership. Because it is anticipated that there will be additional applications submitted for this general area, this analysis will cover the east side of the CRNG, the 80 acres of BLM land which lies adjacent to the

Grassland, and the 280 acres of private land of which 200 acres lies outside the Grassland boundaries rather than covering only those areas to which the pending applications apply.

B. Location

State	Oregon
County	Jefferson
Congressional District	Second
National Forest	Ochoco
Ranger District	Crooked River National Grassland
Bureau of Land Management District	Prineville
Bureau of Land Management Area	Deschutes
Legal Description	
Bureau of Land Management	BLM land in sections 18 and 19, T.12 S., R.15 E., approximately 80 acres
Private Land	W½ SE¼, Section 29, T.12 S., R.14 E., SW¼, Section 18 and NE¼ SW¼, Section 19, T.12 S., R.15 E., approximately 280 acres.
Crooked River National Grassland	CRNG land in T.10 S., R.14 E.; T.10 S., R.15 E.; T.11 S., R.13 E.; T.11 S., R.14 E.; T.12 S., R.13 E.; T.12 S., R.14 E.; Sections 1, 12, 13, and 24, T.13 S., R.12 E.; T.13 S., R.13 E.; and T.13 S., R.14 E., approximately 85,850 acres.

C. Grassland Agriculture - Most of the area being analyzed for impacts is within the Crooked River National Grassland. The several Grasslands have different histories and were created with separate legislation and philosophy than was the National Forest system, and their problems or issues are different. It is important to understand the philosophy of "grassland agriculture" because this philosophy greatly influences the management of the Crooked River National Grassland.

1. History - Land surveyors under contract to the Federal Government were the first to systematically observe, record, and report information about the soils and vegetation in Central Oregon. This was in 1860, and they criss-crossed the country establishing township, section, and even quar-

ter-corners. Their comments about soil and vegetation were sketchy; "good soil, scattered juniper, bunchgrass" is a typical entry. Of course, rumors about the lush grasslands must already have reached the east. Explorers and trappers would have done that. But the surveyor's notes were official and they were specific about location, and that's what was so encouraging to the homesteading movement.

The pioneers came, staked out their 160 acres, cleared the bunchgrass off the land, and began grain farming. Two things went wrong. First, a family couldn't make a decent income on a 160 acre farm. Second, there was one thing that none of the early white travelers had been able to record; that was the amount of rainfall. As it turned out, there wasn't enough to grow grain.

So the crops failed, and one by one the homesteaders left, abandoning their farms and their homes. This must have been a remarkable personal tragedy to some 700 families who had come here with great aspirations. But even more tragic was the lasting effect of clearing the land. The farmers had removed its only real asset when they plowed up the bluebunch wheatgrass. It is ironic that it was this robust, vigorous grass, with its tall, full seed stalks, that in place of rainfall records, had deceived everyone into thinking that this was the place to farm. In the fifty years since then, bluebunch wheatgrass has proven impossible to restore.

2. Legislation - Legislation began at the urging of local county officials. They had lost their tax base, the land was idle and bare. This was the time of the dustbowl, and it was happening in Oklahoma, Texas, Wyoming, Nebraska, and the Dakotas as well as in Central Oregon. So the Federal Government began in 1934 to buy the land back from the homesteaders. This was done under the Resettlement Administration.

Then, on July 22, 1937, the Bankhead-Jones Farm Tenant Act was passed, authorizing and directing the Secretary of Agriculture to "develop a program of land conservation and land utilization . . . in order thereby to correct maladjustments in land use". The repurchased lands were titled Land Utilization Projects and began management and restoration under the jurisdiction of the Soil Conservation Service.

In an Administrative Order of July 15, 1938, Secretary Wilson recognized that:

> "The requirements of protection, use, and management of said lands are identical to those of the adjoining and related National Forest lands."

But it wasn't until January 1954 that the jurisdiction of certain Land Utilization Projects was transferred to the Forest Service.

Then, on June 20, 1960, nineteen Land Utilization Projects were officially designated as National Grasslands. Four days later, an Administrative Order was issued by the Secretary of Agriculture. This communication took care of some routine housekeeping matters; that all Forest Service regulations and policies apply to the Grasslands, and, of course, it issued some broad management guidelines. But it did something more important, two things really. First, it asserted that the Soil Conservation Service concepts would be continued by directing that we:

> " . . . demonstrate sound and practical principles of land use for the areas in which the (Grasslands) are located . . ."

and

> " . . . exert a favorable influence for securing sound land conservation practices on associated private lands . . ."

That sounds grandiose and broad enough to be harmless, but, as we shall see, its implication to land management is as basic and far reaching as rain.

The second gem from this last order has to do with multiple use. The Multiple Use Sustained Yield Act was passed on June 12, 1960, eight days before the Grasslands became a permanent part of the Forest Service. Therefore, the Act says nothing about the National Grasslands and it does not apply to them. So, on June 24, the Secretary of Agriculture in this final Administrative Order declares that:

> "The National Grasslands shall be administered under sound and progressive principles of land conservation and multiple use . . ." (underlining added)

Like the directive to promote and demonstrate, managing for multiple use becomes a basic law. And together, they must be attended to for each land management decision made on the National Grassland.

3. The Dream - It sounds dramatic to use a word like "dream" in connection with the goals and objectives in managing a piece of land. But the men behind the Grassland legislation obviously had that kind of a vision. The kind usually associated with Theodore Roosevelt and Gifford Pinchot. They conceived of large scale land restoration and of demonstrating and promoting a special sense of land utilization. We call that grassland agriculture, but the term is recent; it was coined to help explain what it is we are trying to do with these lands. But it explains nothing. The seven Forest Service regions that contain the nineteen National Grasslands have yet to reach a concensus of the meaning of grassland agriculture. Then

where does it come from? The Forest Service manual? A Secretary of Agriculture's memorandum? Some Forest Service policy statement? No, it is in none of these. It comes from the history and legislation that created the National Grasslands. The dream has been as difficult to communicate as it has to achieve. An attempt to define grassland agriculture will not be made in this analysis, but it is hoped that a feeling for grassland agriculture can be obtained from the following two paragraphs.

The first part of the dream is to restore vast areas of land, almost four million acres in the nineteen National Grasslands, from abandoned cropland to a cover of grass. That is easy enough to understand. The second part is to demonstrate wise use of such land to the neighbors, not only what you shouldn't do with it (remove the grass) but also what you can gain from it - the benefits of maintaining a productive grass crop - wildlife production, game farms, ranching, grazing, soil protection, dust abatement, watershed values, and so on. The third part is to promote wise use. That means that in our policies - of issuing grazing permits, of allowing special uses, of coordinating with neighbors as well as in our practices of management, we use our presence as an instrument to cause wise use on the area of which the Grassland is a part. That's not so easy to explain so that it is understood. It visualizes the Federal land as a garbage dump in reverse. The dump affects a rather large area around it negatively; the Grassland should affect a large area around it positively - toward the perpetuation of grass. To do our job of promotion, we allow our ownership to remain scattered so that our influence is enlarged, we manage lands jointly with neighbors instead of fencing our boundary. (See Land Ownership Map.) The ways to promote through policy and practice are infinite if we have a feeling for what it means.

We can't agree on a definition for grassland agriculture because it is a philosophy that embodies three concepts - restore, demonstrate, and promote. (The words restoration, promotion, and demonstration, as well as grassland agriculture, are used in the Code of Federal Regulations, Part 213.1 which tells the Secretary of Agriculture what he is to do with these lands.) That philosophy does more than describe grassland agriculture, it is central to the meaning of National Grassland.

D. Land Status - There are eight administrative land categories involved within the lease area. (See Land Status Map.)

1. Land acquired under Title III of the Bankhead-Jones Farm Tenant Act that are administered by the Crooked River National Grassland Ranger District of the Ochoco National Forest. Oil and gas ownership is vested in the United States.

2. Lands reserved from the public domain that are included as part of the Crooked River National Grassland. Oil and gas ownership is vested in the United States.

3. Lands acquired under Title III and administered by the CRNG but all or part of the oil and gas rights are in private ownership.

4. Lands acquired under Title III and administered by the CRNG but oil and gas ownership is vested in the State of Oregon.

5. Lands reserved from the public domain that are administered by the Deschutes Area of the BLM's Prineville District. Oil and gas ownership is vested in the United States.

6. Private lands with oil and gas ownership vested in the United States.

7. Private lands with partial oil and gas ownership vested in the United States. (Generally, the United States owns 3/4's of the oil and gas with the remaining 1/4 being privately owned.)

8. Lands and oil and gas privately owned.

E. Operational Procedures - Petroleum operations progress through five phases: 1) Preliminary investigations; 2) exploratory drilling; 3) development; 4) production; and 5) abandonment.

1. Preliminary investigations - Preliminary investigations sometime precede the issuance of a lease and may begin with an office review of available geological and technical data by the interested party. In some cases an office analysis may develop enough information to proceed with drilling without further investigations, but in most cases the office analysis indicates only a broad prospective area in which further investigations may be required.

Preliminary investigations are made from the air and on the ground. Small aircraft and helicopters are used to conduct visual reconnaissance, photographic, and geophysical surveys. On the ground surveys may involve either casual or intensive use of the land. Casual uses generally do not disturb the surface; intensive uses include operations that require clearing of new access trails, movement of heavy equipment, or other actions that can result in substantial surface disturbance. Geological, geochemical, and oil-gas surveys normally do not disturb the surface. Seismic surveys, one of the most frequently used methods of geophysical investigations, often requires clearing new access trails and moving heavy equipment.

In seismic surveys, a shock wave is sent into the subsurface and the time required for the wave to travel to and return from a subsurface horizon is recorded. A map of the subsurface can be drawn from an analysis of the differences in the time it takes the wave to be reflected back to the surface.

Explosive, thumper, or vibrator methods are used to produce the shock wave. In the explosive method, shot holes are drilled to a depth of 50 to 200 feet. Four to twelve holes are drilled per mile. The holes are loaded with 5 to 50 pounds of explosives and detonated. The same hole may be reloaded and shot several times to find the depth and explosive charge returning the best reflection or refraction signal.

The thumper and vibrator methods pound or vibrate the earth to create a shock wave. Less than 50 square feet of surface area is required to operate the equipment at each test site.

The sensors and energy source are located along straight seismic lines laid out on a 1 to 2 mile grid. Existing road systems are used where available. Lines may be cleared of vegetation and loose rocks to improve access for the trucks.

If the preliminary investigations warrant further exploration, the operator will apply for a lease and prepare for the next phase.

2. Exploratory Drilling - If preliminary investigations warrant further explorations, the operator may drill shallow stratigraphic test holes to locate geological indicators of oil and gas. The holes are usually drilled with truck-mounted equipment and disturb a relatively small area. Heavier drilling equipment may be used for deeper holes. Stratigraphic holes in areas of high pressure zones are cased. The roads and trails needed for access to the test sites are temporary and involve minimal construction. The drill site occupies approximately 900 square feet and is sometimes placed in the center of a new or existing trail. The presence of suspected oil and gas deposits may be confirmed by wildcat drilling of deep holes. Wildcat wells are deeper tests, require larger drilling rigs and support facilities, and may disturb a larger surface area, generally one to three acres, than stratigraphic tests. Required facilities include roads, drill pads, mud pits, and in some isolated areas, camps and airports. Twenty to twenty-five men are needed for this type of operation.

Nationwide, approximately one out of every 7 wildcat wells in 1974 was completed as a producer. However, only one in 59 resulted in discovering significant amounts of oil and gas. Of the 200 or so wells drilled in Oregon, none has been financially successful. One of the Oregon wells was drilled on private land in Section 18, T.12 S., R.14 E. in the 1950's. This well was approximately 3,300 feet deep, and there was no indication of oil or gas reported.

After a drilling site has been selected, a heavy duty road may be built to move the drilling rig and other equipment to the location. The roads are not designed for permanent access.

The well site occupies about an acre and is cleared of all vegetation and graded nearly flat. Depending on the soils in the area, the well site, drill pad, and roads may or may not be gravelled. The drilling rig, mud pumps, mud pit, generators, pipe rack, and tool house are located on the drill pad. Other facilities such as storage tanks for water and fuel may be located on or nearby the drill pad. Mud pits are lined with impermeable material to prevent contamination of soils or water.

A water supply is needed for mixing drilling mud, cleaning equipment, cooling engines, and other uses. A pipeline may be laid several miles to a stream or water well to provide the 800 gallons which are needed daily.

The drilling mud is maintained at a specific weight and viscosity to cool the bit, reduce the drag of the drill pipe on the sides of the well bore, bring the drill cuttings to the surface for disposal, seal off any porous formation so as to prevent loss of drilling fluid, and protect formation fluids from contamination. Additives help keep the drill mud at the appropriate viscosity and weight. Some of the more rarely used additives are caustic, toxic, or acidic in nature. Weight additives and fluid loss additives are commonly used and harmless.

Completing the well requires installation of steel casing between the surface casing and the pay zone. The casing is cemented in places to provide stability and to protect specific zones such as fresh water aquifers. The drilling rig and most of the support equipment are usually removed from the well site after the casing is cemented.

An operator may also need storage tanks to hold oil produced from an exploratory well and a separator to separate oil and gas. If water is produced with the oil, a treatment plant may be needed. The gas separated from the oil may be burned off as waste during the initial stage of development of an oil field.

If gas is discovered, the operator is allowed to flare only enough gas for a short period of time to determine the well's capabilities. The well is then shut in until a gas line is constructed.

The completion of a wildcat well as a commercial producer usually marks the beginning of the development phase.

3. Development - A well spacing pattern must be established before development drilling begins. The pattern is determined by the U.S. Geological Survey and the Oregon Department of Geology and Mineral Industries. Most spacing patterns established for current Federal leases set minimums of 10 to 160 acres per well for oil production and units of 160, 320, or 640 acres per well for gas production. Administrative rules of the Oregon Department of Geology and Mineral Industries require a minimum spacing pattern of 40 acres per well unless a different spacing pattern is approved by the Department's governing board.

The procedures used in drilling development wells are about the same as those used for a wildcat well, except that there usually is less subsurface sampling, testing, and evaluation.

Facilities required for development drilling may include access roads; well sites; flowlines; storage tank batteries; facilities to separate oil, gas, and water; and injection wells for salt water disposal. In remote locations, camps and air strips may be required.

Access roads usually are better planned, located, and constructed than those built for wildcat wells and must be approved by the Geological Survey in cooperation with the BLM or the Forest Service. When an oil field is developed on a spacing pattern of 40 acres per well, the wells are one fourth of a mile from each other. If a section (1 square mile) is developed with 16 wells, at least 4 miles of access roads are built and 4 to 6 miles of flowlines are installed between the wells and the tank batteries.

Surface uses in a gas field will be significantly less than in an oil field because gas wells usually are drilled on 160 acres per well or larger spacing units. A 160 acre per well spacing pattern allows no more than four wells per section and requires 2 miles of access roads and pipelines. Separation and storage facilities are not required for gas production unless the production is rich in liquids or condensate. It may be sold without separation and the purchaser may separate the liquids at a central processing point far removed from the lease.

4. Production - If the pressure in the petroleum reservoir is great enough to force the oil to the surface by itself, the result is a flowing well. The surface equipment at the head of a flowing well is usually limited to a series of valves known as a "Christmas tree" and a fenced area 15 by 15 to 50 by 50 feet around the well head and Christmas tree. This is a minimum of surface equipment and produces little or no sound.

However, most oil wells in the United States are not free-flowing wells, thus some means of artificial lift must be used to bring the oil to the surface. More than 90 percent of the nation's oil wells (1971 figures) were on artificial lift and most of the artifical lift wells used sucker rod pumps. These create some noise because of mechanical equipment. Other types of artificial lifts are hydraulic and centrifugal pumps. Some of the equipment is installed on the surface and requires either fuel or electric power lines. All generate noise, ranging from almost none for electric motors to high noise levels for single gas engines.

Injecting high pressure natural gas can also help bring petroleum to the surface. This method is used only when low cost natural gas is available and where pressure in the petroleum reservoir is sufficient to force the hydrocarbons part of the way up the well. The addition of gas lowers the specific gravity of the petroleum so that it completes its flow to the surface. This system is quiet and uses little surface area. However, it will be used less frequently in the future as supplies of high pressure natural gas decline.

No pumping is needed in a well that produces natural gas; the pressure in the formation brings the gas to the surface. However, it may also bring water with it that can choke off the gas flow. In that case, a pump may be installed to remove the column of water. The surface use for a gas well is limited to a 20 by 20 foot area.

Several techniques have been developed to increase the recovery of petroleum when forces within the reservoir are insufficient to drive the petroleum to the well bore. These new methods are called secondary production or recovery methods. Gas or liquid is injected into the formation(s) in order to supplement the natural forces and drive the oil and gas that remains in the reservoir to the well where it can be recovered.

The most common form of secondary recovery is injecting water into the reservoir to force additional oil to the production well. This "water flooding" can increase recovery by as much as 100 percent.

Other secondary techniques for improving oil recovery have been tested, including miscible flooding (injecting chemical solutions into the reservoir), fire flooding (starting a controlled fire in the reservoir), and steam flooding (injecting steam in the reservoir). Tertiary recovery methods are any of the previously mentioned techniques after water flooding has been tried.

Some of the gaseous components may condense into liquid form and reduce the flow of the gas. To prevent this, additional gas is injected to maintain pressure above the condensation point for gas.

Once the oil and gas is brought to the surface, it is distributed by flowlines to a central collection point before it is transported directly off the lease area. The flowlines are usually 3 or 4 inch diameter steel pipes. They may be buried, installed on the surface, or elevated.

An exception is natural gas, which is often sold at the well head and transported directly off the lease. If liquid hydrocarbons or water must be removed first, the gas may be transferred to a central collection point prior to sale.

The crude oil is stored in one or more steel tanks, which are usually located on or near the lease. Small leases may contain only one tank battery; large leases may contain several, with each battery including separating, treating, and storage facilities.

If the fluids produced at the well contain gas and water, oil and gas and water are separated before the oil is stored in the tank battery. Most of the water produced with oil and gas is brackish to lightly saline, although some water is fresh enough for beneficial use. Ranchers and farmers in some areas have filed prior rights claims on oil field water so they can use it for agricultural purposes.

The saline water is disposed of by either subsurface injection or by evaporation pits. The latter method is the more likely in eastern Oregon because of the arid climate and high evaporation rate. When salt water is disposed of underground, it is usually introduced into a subsurface horizon containing water of equal or poorer quality. These disposal wells are cased to protect fresh water aquifers from contamination.

Land requirements for oil field facilities range from 22.4 acres per square mile to 2.4 acres per square mile depending upon the well spacing pattern. Less land is used in gas fields because gas production usually does not require storage on the lease.

The number of people required to operate an oil or gas field varies with the characteristic of the production and the number of lease holders in the field. One employee in a large modern field can control production of about 25 wells if they flow without pumping. When wells are pumped, one employee in a large modern field can control production on 10 to 20 wells. If storage tanks are manually gauged and sampled, one person can service about 25 tanks. If automatic gauging and sampling devices have been installed, one employee can service 100 to 150 tanks. In a large field, one five-man maintenance crew can service up to 50 wells.

5. Abandonment - The abandonment operations, like all the previous activities, are monitored by the Geological Survey and Oregon Department of Geology and Mineral Industries. Both dry wildcat wells and development wells are normally plugged before the drilling rig is removed since the operator can use the drilling rig to plug the hole and avoid bringing in other equipment. Once the drilling rig is removed, the surface and any reserve mud pit is restored to its original condition as much as possible.

   When the operator wishes to abandon a producing well, he must demonstrate its unsuitability for further profitable production to the Geological Survey District Engineer. In some cases, wells are plugged (with cement) as soon as they are depleted. Sometimes depleted wells are not plugged immediately, but are allowed to stand idle for possible better use in a secondary recovery program.

When an oil or gas field is depleted and the entire lease will be abandoned, all surface equipment is removed. Flowlines and injection lines that had been buried are usually left in place. The operator's bond with the Federal Government is not terminated until the BLM or the Forest Service has approved surface restorations, the Geological Survey has approved subsequent reports of abandonment, and royalties due the Federal Government have been received.

F. Federal Oil and Gas Leasing Procedures - The Bureau of Land Management administers Federal laws and regulations pertaining to mineral resources on lands under its primary jurisdiction (i.e., national resource lands) and those withdrawn for other agencies, including the Forest Service, and on private lands when the Government owns the subsurface mineral rights. The BLM, in consultation with the U.S. Geological Survey, and any other Federal agency with surface management jurisdiction over lands in the area, determines whether, and under what conditions, Federal oil and gas leases will be issued.

After a lease is issued on lands administered by the BLM or the Forest Service, the Geological Survey oversees the oil and gas activities in the "area of operations" (see following section on "Post-Lease Procedures" for a definition of "area of operations"). They are responsible for maintaining and providing engineering, geological, geophysical, economic, and other technical expertise to assure compliance with applicable laws, regulations, and objectives of the surface managing agency. They also ensure that the operator complies with any surface stipulations that the BLM or the Forest Service have written into the lease. For a comprehensive view of the administrative procedures involved in an oil and gas leasing program, see Figure 1.

1. Pre-Lease - The first step in oil and gas exploration is conducting a geophysical survey over an area favorable for oil and gas. If an operator wants to survey BLM or Forest Service administered lands that he has not leased for oil and gas, he must file a Notice of Intent and a bond with the BLM or obtain a special use permit and post a bond with the Forest Service before entering the land. When he signs the Notice of Intent or special use permit, the operator agrees to conduct the exploration according to BLM and Forest Service terms and conditions, which are designed to minimize any potential adverse impacts. Upon completion of the survey, if the operator has complied with all of the stipulations, he will be released from the bond.

   If the results of the geophysical survey are favorable, the operator may apply for an oil and gas lease. To protect the prospect from competitive speculation, the operator applies for additional acreage around the target area that he has delineated. Once the application is received, the BLM or Forest Service prepares an Environmental Analysis Report (EAR) on the oil and gas lease application area. The Environmental Analysis Report describes the setting in which the action is to occur and possible environmental impacts of the proposed action and recommends measures that will reduce adverse impacts of the proposed action.

Such an operation must meet not only Federal but State requirements. In Oregon, the State Department of Geology and Mineral Industries (DOGAMI) requires a permit for any drilling operation. This agency must also approve casing and cementing programs designed to prevent leakage of contaminating fluids, inspect blowout prevention equipment, witness abandonment plugging, and collect well records. In the event of a discovery, the Department's rules require uniform development, location, and spacing of wells and regular reporting of storage and production.

The State Department of Environmental Quality (DEQ) may add conditions to the state drilling permit that enforce compliance with state air and water quality laws.

The drilling permit application is reviewed by the Oregon Department of Environmental Quality (DEQ), the Water Resources Department, the Department of Fish and Wildlife, and the Department of Land Conservation and Development (LCDC).

G. Names and Addresses of those Proposing Activity:

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3. William A. Rietkerk, Jr.
Albert J. VanDalfsen
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Bothell, Washington 98011

4. Dale E. Hancock
8010 River Road #29
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5. Larry L. and Karen D. Brewer
511 N. 143rd
Seattle, Washington 98133

6. Joseph J. Johnson
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7. Martin M. Sheets
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8. Myron W. Hutchins
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9. Mrs. Irene S. Harrison
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10. Eleanor I. Morbeck
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11. Ruth M. Matteson
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12. Deryl E. Hansen
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13. Howard M. Simons
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14. It is anticipated that there will be additional applications. The additional applications may be from those listed above for additional areas or from new applicants. The Pending Applications Map shows the areas for which there are current applications for oil and gas leases.

H. Purpose of Proposal and Objectives to be Obtained - The purpose of the lease applications is to obtain the right to explore for oil and gas, and if found, to construct the developments and facilities necessary to extract the oil and gas. The objective is to locate and extract oil and/or gas.

I. Appropriateness of Proposed Action to Land Management Objectives - Most of the land that now comprises the Crooked River National Grassland was purchased by the Federal Government in the late 1930's as part of a national program to take land not suitable for farming out of cultivation. Most of the land had been abandoned soon after settlement in the early 1900's, and drought, poor quality land for farming, and competitive disadvantages in raising and selling crops were contributing to another wholesale abandonment of the land in the 1930's. The land was purchased by the Federal Government " . to correct maladjustments in land use and assist in controlling soil erosion, reforestation, preserving natural resources, protecting fish and wildlife, mitigating floods, preventing impairment of dams and reservoirs, conserving surface and subsurface moisture, protecting the watersheds of navigable streams, and protecting the public lands, health, safety, and welfare but not to build industrial parks or establish private industrial or commercial enterprises". The above is quoted from the Bankhead-Jones Farm Tenant Act of July 22, 1937, and it outlines the management objectives for the Grassland.

Notwithstanding the above regarding industrial parks and private industrial or commercial enterprises, the Office of General Counsel, United States Department of Agriculture has rendered the opinion concerning the above quoted portion of the Bankhead-Jones Act that "We do not find anything in the Act or its legislative history to indicate that Congress intended by the language quoted above to prohibit the normal development of Government-owned minerals, including such pumping or other facilities as are necessary to their removal". This has been interpreted to mean that oil and gas leases may be issued and development may be permitted if such leases and development can be coordinated with other uses so that the above mentioned objectives can be met.

Most of the private land within the study area is zoned Exclusive Farm Use A-1 or General Agriculture A-2-40. Uses allowed in A-1 are also allowed in A-2-40. Certain non-farm uses such as oil and gas production can be permitted within these agriculture zones, provided the county's governing body approves.

The Federal Government has the authority to lease federally owned oil and gas overlaid by private land contingent upon the lessee providing proof of bonding that insures protection of the surface resources. However, it is the responsibility of the lessee to make operational arrangements with the private land owner.

The proposed action is appropriate to the land management objectives as long as this action can be coordinated with other uses of the area. It is the purpose of this Environmental Analysis Report to determine if the proposed action can be coordinated with other uses and to outline management requirements and constraints that will be carried over into project plans, etc. if the proposed action should be recommended.

J. Characteristics of the Resources

1. Geology and Landform - The study area lies along the border of the Deschutes - Umatilla plateau physiographic province and the western end of the Ochoco Mountains section of the Blue Mountains physiographic province. The topography varies from gently undulating to moderately hilly with steep slopes being limited to the isolated rhyolitic buttes or to the canyons that were cut by running water. The highest point is Gray Butte which is near the south boundary and which is 5,108 feet high, while the elevation is 2,100 feet at the north boundary of the study area. Most of the study area lies at elevations between 2,100 and 3,000 feet.

   The study area is underlain primarily by two lithologically similar formations. The John Day formation of Oligocene-Miocene age is composed of tuffaceous sediments, air-fall tuffs, and includes buttes, such as Gray Butte, which are rhyolitic domes with associated volcanic flows. A group of Pliocene age water-laid volcanic sediments which show much channeling and cross-bedding cover a large portion of the study area. These younger rocks are variously mapped as The Dalles formation, Madras formation, or Deschutes formation. Along Willow Creek a thin Upper Pliocene basalt flow covers several square miles.

2. Climate - Normal air movement is from the Pacific Ocean which is approximately 150 air miles to the west. Air

masses first cross the Coast Range and then the Cascade Mountains where much of their moisture is removed as rain and snow. The air that moves down the eastern slopes of the Cascades and out across the central Oregon plateau is very dry.

The area receives 8-12 inches of precipitation each year. Very heavy rainstorms of short duration occur in the spring and summer, but these storms are confined to small areas, and the chance of any one place experiencing such a storm is only once in several years. Runoff can be a serious problem when the summer storms do occur. Any snow occurring in the study area typically melts in a matter of a few hours to a few days.

Air temperatures range from 30 below zero to over 90 degrees F., with an average of 48 degrees. Frost is likely to occur every month of the year in areas of poor air drainage. Relative humidity varies from 10 to 100 percent with the average being about 25 percent.

3. Water - Willow Creek and the Crooked River are the only perennial streams in the study area. Other streams are small but they carry large amounts of water during short runoff periods. The southern portion of the area drains into the Crooked River which drains into Lake Billy Chinook above the Round Butte Dam; Willow Creek drains the middle portion of the area into Lake Simtustus above the Pelton Dam; and the northern portion of the area drains into the Deschutes River below the Pelton Dam. Most summer precipitation is lost to evaporation.

   There are several springs which have been developed to provide water for livestock and wildlife, and several wells have been drilled for the same purpose.

4. Soils - Soil information is needed for general planning and resource development as well as selecting sites for roads, buildings, mud pits, drilling pads, etc. Following is a description of the soil types that occur within the study area: (See Soil Types Map.)

   a. Agency Series - This series consists of moderately deep, well-drained soils that were formed in medium-textured deposits of volcanic origin, and it occupies slopes of 0 to 3 percent. Permeability is moderate as is the available water holding capacity. The effective root zone is 20 to 40 inches. Runoff is slow and the erosion hazard is low.

   b. Donnybrook Series - This series consists of shallow, stony, well-drained soils derived from tuft and colluvium affected by loess, and it occupies slopes that range from 7 to 12 percent. Permeability is medium, and the available water holding capacity is low. The effective root zone is 10 to 20 inches. Runoff is medium as is the erosion hazard.

c. Era Series - This series consists of moderately deep, well-drained, moderately coarse-textured soils formed from volcanic sediments, and it occupies slopes that range from 3 to 7 percent. Permeability is moderately rapid, and the available water holding capacity is moderate. The effective root depth is 20 to 40 inches. Runoff is slow but the erosion hazard is medium.

d. Gem Series - The Gem series consists of moderately deep, well-drained, very stony soils derived from basalt, and it occupies slopes that range from 20 to 60+ percent. There are inclusions of rock outcrop in this type. Permeability is slow, and the available water holding capacity is moderately low. The effective root zone is 20 to 40 inches. Runoff is very rapid and the erosion hazard is medium.

e. Lickskillet Series - This series consists of shallow, stony, well-drained soils formed on steep basalt slopes - slopes that range from 35 to 60+ percent. There are inclusions of rock outcrop in this type. Permeability is moderate, and the available water holding capacity is very low. The effective root zone is 10 to 20 inches. Runoff is rapid and the erosion hazard is high.

f. Lamonta Series - The Lamonta series consists of moderately deep, well-drained soils formed from mixed volcanic materials on alluvial fans, and it occupies slopes that range from 3 to 12 percent. Permeability is slow, and the available water holding capacity is moderate. The effective root zone is 20 to 40 inches. Runoff is slow to medium but the erosion hazard is medium to high. The erosion hazard increases as the slope increases.

g. Madras Series - The Madras series consists of moderately deep, well-drained soils derived from old water-laid materials, and it occupies slopes that range from 0 to 60+ percent. Permeability is moderate as is the available water holding capacity. The effective root zone is 20 to 40 inches. Runoff is slow on slopes up to 12 percent and medium on slopes greater than 12 percent. The erosion hazard is low on 0 to 7 percent slopes, medium on 7 to 20 percent slopes, and high on slopes greater than 20 percent.

h. Lamonta - Madras Series - This series consists of about 70% of the Lamonta series and 30% of the Madras series, and it occupies slopes that range from 3 to 12 percent.

i. Ochoco - Prineville Series - This series consists of moderately deep, well-drained soils derived from old alluvium. It occupies 0 to 3 percent slopes. Permeability is moderate, and the available water holding capacity varies from low to moderate. The effective root zone is 20 to 40 inches. Runoff is slow and the erosion hazard is low.

j. Rock Land Series - The Rock Land series consists of steep and very steep canyon walls and mountain slopes having a high percentage of rock outcrops. This series occupies slopes that range from 7 to 60+ percent, and it has inclusions of steep, stony soils. Permeability and available water holding capacity is variable - depending on location. The effective root zone is 0 to 30 inches. Runoff is rapid and the erosion hazard is moderately high.

k. Scabland Series - The Scabland series consists of nearly level to sloping (7 to 12 percent slopes) areas of nearly bare basalt. Most of the soil has been eroded from old basalt flows. Permeability is slow, and the available water holding capacity is low. The effective root zone is 0 to 10 inches. Runoff is rapid and the erosion hazard is low.

l. Simas Series - The Simas series consists of moderately deep, fine-textured, well-drained soils formed from soft sedimentary rocks, and it occupies slopes that range from 25 to 30 percent. Permeability is slow, and the available water holding capacity is moderate. The effective root zone is 20 to 40 inches. Runoff is rapid, and the erosion hazard is high. There are inclusions of as much as 30% of the Madras series and 20% of the Era series within the Simas series.

m. Tub Series - The Tub series consists of moderately deep, fine-textured, well-drained soils formed in rolling uplands over soft sedimentary rocks, and it occupies slopes that range from 12 to 35 percent. Permeability is slow and the available water holding capacity is moderate. The effective root zone is 20 to 40 inches. Runoff is rapid and the erosion hazard is high. There are inclusions of about 30% of the Simas series within this series.

5. Air - The prevailing winds are from the west with most wind occurring during the spring. However, 10-20 mile per hour winds throughout the year are not uncommon. Air quality over the area is generally good. Mills in Madras, Prineville, and Redmond are sources of some air pollution as is grass and grain field burning in the Madras area. Dust storms occasionally add pollutants to the air, and there is some pollution as a result of the traffic within and adjacent to the study area.

6. Vegetation - Almost all of the original vegetation was removed by homesteading farmers. Therefore, it is difficult to reconstruct what the original vegetative patterns were.

It is believed that most of the area was grassland - bluebunch wheatgrass and Idaho fescue - with some sagebrush, rabbitbrush, bitterbrush, and juniper. Dominance of brush or grass would have varied with slope, soil depth, and elevation. Following is a description of the vegetation types that occur within the study area:

a. Juniper Type - Juniper dominates the vegetation with there being one or more juniper trees per acre. The thickness of the juniper overstory determines in part what the understory will be. The following understories can be found: 1) Annuals (cheatgrass and forbs) - The annuals are sometimes very few so that there is an appearance of there being only bare ground. 2) Shrubs (sagebrush, rabbitbrush, bitterbrush, or any combination of these shrubs) - Bluebunch wheatgrass, Idaho fescue, Sandburg bluegrass, needle-and-thread grass, bottlebrush squirreltail, or any combination of these grasses may occur. 3) Grasses - Bluebunch wheatgrass, Idaho fescue, Sandburg bluegrass, needle-and-thread grass, bottlebrush squirreltail, or any combination of these grasses may occur. There can be an occasional shrub intermingled with the grasses, or shrubs may be completely absent.

b. Brush Type - Sagebrush, rabbitbrush, and/or bitterbrush dominate and comprise more than three percent of the crown cover. Bluebunch wheatgrass, Idaho fescue, Sandburg bluegrass, needle-and-thread grass, bottlebrush squirreltail, or any combination of these grasses occur in the understory.

c. Grass Type - Bluebunch wheatgrass and/or Idaho fescue dominate with Sandburg bluegrass, needle-and-thread grass, and bottlebrush squirreltail occurring in various amounts. Sagebrush, rabbitbrush, and/or bitterbrush can occur in any combination but not to comprise more than three percent of the crown cover, or shrubs can be completely absent.

d. Crested and/or Whitmar Wheatgrass Type - This type occurs on abandoned fields that have been seeded to crested or whitmar wheatgrass. Most of these seedings are being invaded by rabbitbrush and/or sagebrush.

7. Wildlife - Extensive wildlife inventories of the lease area are lacking. The Oregon Department of Fish and Wildlife and the Ochoco National Forest have made planning inventories of wildlife known or expected to occur in the area. This information is available at the respective offices in Prineville, Oregon.

The Ochoco National Forest assisted the Pacific Northwest Experiment Station in conducting several bird census routes. Information regarding other wildlife species and vegetation composition was also gathered during the bird census studies.

The information gathered from the bird census routes has not been published at this time, but this information is available at the Ochoco National Forest Supervisor's Office.

The lease area is year long range for a resident mule deer herd that may increase slightly during the winter as deer are pushed into this area from the higher country to the southwest. Most deer use is in the juniper and brush vegetative types or in the abandoned fields that are heavily invaded with brush.

There is an antelope herd in the Lamonta vicinity (see Wildlife Map) that has been increasing in size since its introduction until there are now an estimated 50 animals in the herd. There has been an extensive coyote hunting and trapping program under the direction of the Oregon Department of Fish and Wildlife to protect the antelope herd and to help increase kid survival. Antelope kidding areas are the juniper and brush draws within, and along the fringes of, the antelope range.

The lease area supports a fairly good population of valley quail and mourning dove and a small population of resident pheasant. There are one or two adult cock pheasant releases made each year by the Oregon Department of Fish and Wildlife. It is estimated that hunting, predators, or the elements result in 100% of the released pheasants being killed each year. An occasional chukar partridge can be observed along the steeper canyon slopes.

Both cottontail and jackrabbits are present. The rabbits, along with the rodent population, provide food for an occasional bobcat and a substantial coyote population. As mentioned above, and as will be discussed later in this report, the coyote population is being controlled to reduce predations on the antelope and domestic sheep herds. The small bobcat population does receive some hunting pressure.

There are several active golden eagle and a few prairie falcon nests within the lease area. The locations of these nests will not be made public in order to protect the birds, both young and old, from harassment and capture. The northern bald eagle and osprey have been observed hunting, but it is not believed that they have nests within the study area. The peregrin falcon has been observed in the study area during its migration, but again, it is not known that the peregrin falcon nests in this area.

There is a resident trout population in the Crooked River and in Willow Creek that receive light fishing pressure.

An intensive study of the Willow Creek area is being conducted by the Oregon Museum of Science and Industry. The purpose of the study is to determine changes in mammal and vegetative species composition and vigor that may result from a grazing system change. There is no published data from this study at this time, but there is some preliminary data available at the Museum's office in Portland, Oregon.

8. Scenic and Aesthetic Quality - On a broad region-wide basis, the study area is located within the extreme southwest tip of the North Central Oregon Plateau (Columbia Basin) Visual Character Type and serves as a transition zone between three adjacent visual character types: The Harney Basin (or High Lava Plains) type to the south, the Cascades type to the west, and the Blue Mountains type to the east. (See Figure 2.)

   The North Central Oregon Plateau, an upper plain along the Columbia River, is a great interior plateau lying between the Cascade Range and the Blue Mountains. The John Day, Deschutes, Metolius, and Crooked Rivers dissect this plain, and the latter three rivers come together west of the study area in the Cove Palisades State Park. The region is noted for its frontier aspects and refreshing views of mountain peaks. Topography varies from very gently undulating to moderately hilly. Steep slopes are of limited occurrence and restricted to isolated rhyolitic buttes or canyons cut by some of the major water courses. The study area falls in a semi-arid zone and is dominated by juniper, shrub, and grass vegetative types.

   As a transition, the Grassland offers a first impression or introduction to the semi-arid landscapes found in Central Oregon. This impression is a significant natural contrast to those visitors who travel from adjacent visual character types to the west.

   Part of the visual experience offered to visitors who travel through, within, or adjacent to the study area is determined by the basic physiographic features that exist there; they include: (1) Upland rolling hills, as found primarily in the northern portion of the study area, (2) valley lands, as found primarily in the central portion, and (3) basin plains surrounded by mountains in the southern portion.

   These physiographic features provide the basic spacial character which establishes the visual experience. Rolling hills offer a variety of open and enclosed spaces. Valley lands basically provide semi-open and enclosed spaces. Basin plains generally offer a vast open spacial experience with distant views. (See Visual Resource Inventory Map.)

   Each common physiographic space contains detailed landscape elements that are distributed and arranged as isolated or grouped features. Such landscape elements accent the physiographic space and contribute to the quality of visual experience. They can be natural or man-made and are generally focal elements or landmarks in the landscape. Examples of detailed landscape elements within the study area include:

a. Buttes, ridges, and mountain peaks (Grey Butte, Haystack Butte, Juniper Butte, Pine Ridge, Buck Butte, etc.).

b. Steep rocky gorges (Crooked River Gorge and Willow Creek Gorge).

c. Rivers and streams (Crooked River, Mud Springs Creek, Willow Creek, etc.).

d. One reservoir (Haystack Reservoir).

e. Several small canyons and rimrocks (Sherwood Canyon, Osborne Canyon, etc.).

A combination of sufficient variety in the terrain and a vegetation cover of predominantly shrub-grass with sparsely scattered juniper trees, allows for vast open and distant views. For this reason, detailed landscape elements are highly prominent and naturally dominate the visual field moreso than in forested areas. Such prominent elements can be seen at great distances and for long periods of time, even while moving in a vehicle. They are the focus of attention and are, therefore, identified as sensitive viewing zones. (See Visual Resource Inventory Map.)

Activity developments on, within, near, or in line of sight of such focal features, if not designed or located properly, may severely alter the visual quality of the particular physiographic space involved. Examples of this already exist throughout the study area. The many power transmission lines and related facilites dominate the landscapes in many areas to the extent that they co-dominate or compete for visual dominance with the natural prominent features already there.

A detailed analysis of the scenic quality and viewing sensitivity of the study area is available at the Ochoco National Forest office in Prineville, Oregon.

K. Social and Economic Uses

1. Recreation - The study area in general is used for deer, small game, and upland bird hunting. The Oregon Department of Fish and Wildlife release pheasants at several locations several times during the pheasant season.

Visits for riding, sightseeing, nature study, general camping, and hiking are common. Many of the visitors are from the Prineville, Bend, Redmond, and Madras areas that take afternoon or Sunday drives to look at wildlife and scenery. U.S. Highways 97 and 26, that traverse the area, also provide visitors.

Major recreation attractions within or adjacent to the study area are as follows: (Those attractions adjacent to the study area are listed here because they draw people into the study area, and they have a direct influence on the recreational experience of the total area. See Major Recreation Attractions Map.)

a. Crooked River Gorge - The Crooked River Gorge runs through or adjacent to parcels of CRNG land in or near the southwest corner of the study area. The gorge ranges from approximately 15 to 400 feet deep with near vertical rock walls. The Peter Skene Ogden Scenic Wayside, which is administered by the State of Oregon, is located just outside of the study area where U.S. Highway 97 crosses the gorge. Osborne Canyon which drains into the gorge has many of the same characteristics.

b. Smith Rock State Park - This park is located along the Crooked River approximately 1.5 miles south of the study area and approximately 3.75 miles southeast of Gray Butte. The Smith Rocks have near vertical sides that attract rock climbers.

c. Lake Billy Chinook - Lake Billy Chinook lies several miles west of the study area. The lake was created when the Round Butte Dam was constructed in the Deschutes River below the mouths of the Crooked and Metolius Rivers. Fingers of the lake run up the Crooked, Deschutes, and Metolius Rivers. The Cove Palisades State Park is the major campground on the lake.

d. Lake Simtustus - Lake Simtustus lies on the Deschutes River just below Lake Billy Chinook. This lake was created when the Pelton Dam was constructed in the Deschutes River.

e. Haystack Reservoir - Haystack Reservoir was created as part of the North Unit Irrigation Project. There is a developed campground at the reservoir that receives approximately 13,000 visitor days use or approximately 67,600 recreation visits each year. (A visitor day consists of 12 visitor hours which may be aggregated continuously, intermittently, or simultaneously by one or more persons. A recreation visit is a visit by a person to engage in any activity except those activities in pursuit of a gainful occupation.) There is swimming, fishing, and boating available at Haystack along with other normal recreational activities such as hiking, sightseeing, nature study, etc. that are available at most campgrounds.

2. Natural Beauty - The aesthetic values of the area are classified according to scenic quality appeal of the various landscapes involved. The classification is based on the premise that all landscapes have some value, but those with the most variety or diversity have the greatest potential for high scenic value.

The North Central Oregon Plateau Visual Character Type is the frame of reference used to compare and determine scenic quality ratings for any landscapes that occur within it.

The scenic quality of the landscape has been classified according to the variety and character of natural elements that are being displayed. There are three variety classes which identify levels of scenic quality:

Class A - Distinctive	High Scenic Quality
Class B - Common	
Class C - Minimal	Low Scenic Quality

(See Visual Resource Inventory Map.)

3. Wilderness - There is no wilderness or potential wilderness within the study area nor are there any roadless areas.

4. Timber - There is no commercial timber. A small amount of juniper is utilized for firewood and fence posts.

5. Range - Grazing of this area is important to the local, state, and national economies. Approximately 2,550 head of cattle belonging to 36 permittees graze within the study area for approximately 15,600 animal unit months each year.

   There are a total of 13 allotments involved - all grazed under deferred rotation grazing systems. A deferred rotation grazing system utilizes all of the allotment each year, but use on a portion of the allotment is deferred until after the growing season. Pastures or units are rotated every year, or every two years, so that all pastures receive the benefit of the deferment.

   Most of the permittees put all of their livestock on the allotments from May through November. This range is an important contributor in making economical units of their farms and ranches. The livestock spend the winter months on the home ranch where they are generally on stubble fields and in feed lots. There is a two-month feeding period in this area. (See Range Improvements Map.)

6. Historical and Archaeological - Following is a brief description of the known sites. It is likely there are several uninventoried sites within the area. Historical and archaeological site locations will not be made public per current laws and regulations.

   a. Homesteads - These lands were settled by homesteaders about 1900 with a second influx in the early 1920's. Because of drought, poor farm land, and other reasons, much of the land was abandoned and the land was sold to the Federal Government in the late 1930's. It is estimated that there were over 700 families living on this and adjoining areas during the homestead era. There are many old homestead sites scattered throughout the lease area. Most of these sites are evidenced by old orchards, but some still have building remnants.

b. Joe Weigand Stage Stop - The stage stop was a homestead that was so located that it eventually became a stage and freight stop. Remains of the stage stop are in a very deteriorated condition.

c. Lamonta Townsite - A government scouting party led by a Mr. McDowell mentioned this site as a place visited by them in 1843. Lamonta was originally called Desert, and a post office was established in 1882. At one time, the town had four saloons, a hotel, a blacksmith shop, and a large general store that had a dance hall over the store. The town was gone by 1934.

d. Gray Butte Cemetery - The Gray Butte Cemetery was started in 1893. The cemetery is fenced and maintained.

e. Springer Cemetery - On three occasions, the Springer family lost children at childbirth. The children were buried on top of a bluff where Mrs. Springer could see the gravesites from the window of her house.

f. Pictographs - These sites have been desecrated by removal of pictographs by chipping and/or rock removal. The amount of excavation at the site indicates that a considerable amount of material has been displaced. It is estimated that there were once about 100 pictographs, but there are now only 10 or 12 remaining.

g. Travel Routes - Approximately 7 miles of the Steen travel route traverses the area as does approximately 8 miles of the Huntington travel route.

7. Special Land Uses - There are over 100 permits for special land uses issued for the study area. The special land uses include a wide range of activities - such as water and natural gas pipelines, power and phone lines, roads, irrigation systems, air fields, electronic sites, spring and well developments, range improvements, and so on. (See Special Land Uses Map.)

The recent energy crisis makes the natural gas pipelines and electric transmission lines significant to the entire nation. Uses such as irrigation systems, spring and well developments, corrals, and fields benefit farming and ranching enterprises which are important to the local, state, and national economies. Other uses such as electronic sites, dumps, rock pits, phone lines, and roads are important to local communities or to individuals.

8. Minerals - There is one mining claim located within the study area. (See Special Land Uses Map.) The claimant has been

performing sufficient work to keep the claim valid, but he has not been removing significant volumes of cinnabar ore.

9. Water - The North Unit Irrigation Project comprises much of the private land that adjoins the west side of the study area. The water irrigating the North Unit Irrigation Project originates from the Wickiup Reservoir, which lies approximately 40 miles south of Bend, Oregon. The Haystack Reservoir, which lies within the study area, is a part of the North Unit Irrigation Project as are several miles of ditch and canal. (See Special Land Uses Map.)

   As mentioned earlier, the Crooked River and Willow Creek drain the southern two-thirds of the lease area into the Deschutes River - the Crooked River above the Round Butte Dam and Willow Creek above the Pelton Dam. The major purpose of the Round Butte and Pelton Dams is to produce electricity. However, the impoundments created by both dams are used extensively for recreational purposes. The northern one-third of the area drains into the Deschutes River below the Round Butte and Pelton Dams. The Crooked, Metolius, and Deschutes Rivers contain resident fish populations while that portion of the Deschutes below the Pelton Dam is important anadromous fish water. The Deschutes drains north into the Columbia River.

   As can be seen from the above, this watershed is important even though it does not drain great amounts of water. While recreation, irrigation, and power production benefit from this water, the first use of the water is by the wildlife and livestock that use the area.

10. Wildlife - The deer herd receives moderate hunting pressure as do small game and upland game birds. The adult cock pheasants that are released each year are hunted to such a degree that nearly 100% are harvested. (It is estimated that those birds not harvested by hunters are killed by predators or the elements.)

   During the last couple of years, coyotes in this and adjacent areas have been hunted in a contest in which the individual who killed the most coyotes received a prize. This contest was sponsored by local ranchers to remove predators to protect livestock. It is not known whether the contest will be continued.

   The small bobcat population receives some hunting pressure.

   The study area lies within easy access of the population centers in the vicinity which, when combined with the many roads within the study area, makes this an ideal place for viewing and photographing the many wildlife species. A trip to view the antelope herd from U.S. Highway 26 is especially popular.

   The portions of the Crooked River and Willow Creek within the study area receive light fishing use.

11. Civil Rights - A breakdown of the populations is as follows:

Racial Group	Crook	Deschutes	Jefferson
Caucasion	9,781	29,781	6,989
Spanish Language	94	441	170
Black	2	24	46
American Indian	90	93	1,325
Other	18	103	18

(Sources: Crook and Jefferson County information is 1970 statistics that were obtained from the 1976-1977 Ochoco National Forest Title VI Affirmative Action Plan, and the Deschutes County information is 1972 statistics that were obtained from the June 1973 Deschutes County Resource Atlas that was published by the Oregon State University Extension Service.)

Generally, employment of minority groups on a percentage basis is essentially the same as for caucasions. Pay scales are also essentially the same. Most minorities work in blue collar jobs.

The Spanish language group in Jefferson County does suffer a greater unemployment rate and a lower pay scale than the others. This group is basically farm labor.

The Warm Springs Indian Reservation lies northwest of Madras. The headquarters is at Warm Springs, Oregon. There is a mill at Warm Springs that processes the timber from the reservation, and there is a ranching industry on the reservation. Generally, the reservation industries provide employment for the Indians.

Office clerical, services (store clerks, waitresses, etc.), and mill work provide most of the employment for women in the three counties. Problems for women in the work force are lower pay scales than men, a lack of facilities (day care centers, etc.) to care for children of working mothers, and there is not much chance for advancement - especially in the mill work and services fields. There is more opportunity for advancement in the office clerical field, but there is still room for improvement.

Minorities are a small part of the total populations, and generally, there are no major problems.

L. Protection and Management

1. Fire - There is an average of 5 man-caused fires each year that occur around Haystack Reservoir, around other recreation areas, or along roads. The lightning fire occurrence average is 2 per year with most of the lightning fires occurring along the electric transmission lines and in the Gray Butte vicinity.

Fires in the study area are larger and spread more rapidly than on the rest of the Ochoco National Forest because the fuel is generally drier and more flash fuels are available.

There is little or no long-term damage caused by wildfire. The biggest impact from fire is a short-term change in vegetative cover. Fire is being used as a tool to eliminate juniper and brush in preparation of planting and establishing grass.

2. Transportation - U.S. Highways 97 and 26 traverse portions of the Grassland. Most of the area can be reached by county or Grassland roads throughout most of the year. Most of the county roads are unsurfaced; however, they are maintained and are usable but dusty during the time they receive their heaviest use. Other roads are mostly unsurfaced roads on which there is little maintenance work performed, and they are dusty during dry weather and muddy during wet weather. The good access to this area and the many roads within the study area make this area available to a fairly large number of people in a few hours travel time.

3. Insect and Disease - There are no known problems associated with insect or disease.

4. Research - The Oregon Museum of Science and Industry (OMSI) is conducting research in Willow Creek to determine changes in mammal and vegetative species composition and vigor within an area that has just recently been excluded from livestock grazing. This study was started in 1975, and it is estimated the study will be continued for approximately 10 years. Although not published, some preliminary data is available.

   Frederick C. Hall, Principal Plant Ecologist for the Forest Service's Northwest Region, is researching the effect of fire control on juniper and shrub growth and invasion. Preliminary data from this study is also available in unpublished form.

   There are no formal research set asides.

5. Administrative Improvements - There are buildings, corrals, and pastures for CRNG administrative use at the field headquarters in the NW ¼, Section 32, T.12 S., R.14 E., and there is a trailer at Haystack Reservoir to house the caretaker.

6. Land Adjustment - There are no immediate plans for land adjustments within the study area. The mixed land ownership provides the opportunity to exercise the directive to promote and demonstrate grassland agriculture to a larger number of neighbors.

7. Improvements - There are roads, wildlife and livestock trails, fences, water developments, buildings, ditches, and canals, etc. within the study area.

8. Threatened and Endangered Species - There are no known threatened, endangered, or unique vegetative species within the study area.

The American peregrin falcon is on the Federal endangered species list while the northern bald eagle is on the State's threatened species list. These two birds are not known to nest within the study area, but as was discussed earlier, they have been observed hunting or travelling over the area.

The golden eagle, prairie falcon, and bobcat are considered unique species by the Ochoco National Forest and the local Oregon Department of Fish and Wildlife office - the golden eagle and prairie falcon because they are so easily harassed and the bobcat because he is so few in number yet so easily hunted.

IV. ENVIONRMENTAL EFFECTS

A. Exploration Phase

1. Drilling activities may add to the local economy.

2. Existing low standard roads may be upgraded or eliminated, or new roads may be constructed in good locations while poorly located existing roads are eliminated.

3. This activity may result in the discovery of new archaeological and historical sites that can be studied and preserved.

4. Access roads to drilling sites may be constructed. Road construction will eliminate vegetation and disturb the soil which may result in erosion and a lowering of water quality.

5. Clearing drilling sites may have the same effect as constructing access roads.

6. There may be an increase in the number of roads. Roads in much of this area will be very difficult to block. More roads will mean increased erosion, lowering of water quality, and an increase in wildlife harassment.

7. Use of equipment will cause some air pollution through exhaust fumes and dust.

8. The soil may be compacted when machinery is used - especially when machinery is used on wet soil. Compacted soil reduces precipitation infiltration thus increasing runoff and erosion and decreasing the amount of available water. Vegetation growth and establishment is adversely

affected by soil compaction and a lack of ground vegetation increases the possibility for erosion.

9. Fording or crossing drainages without proper protection of the drainages and the banks may cause erosion during runoff periods.

10. Surface disturbance may result in disturbance and loss of archaeological and historical sites.

11. Even though it is unlikely, the possibility of a blowout does exist. A blowout may discharge gasses into the air which are toxic, which have an obnoxious odor, or both. If sprayed into the air in strong winds, the discharge can be distributed over a wide area.

12. The danger of fire and the resultant catastrophe will exist because ignition of blowouts is possible. Blowout fires can be dangerous and destructive as they eliminate habitat, cover, feed, etc., and fire will add pollutants to the air.

13. Wastes produced during drilling can damage or kill vegetation, sterilize the soil, and/or pollute the surface water. Wastes can also pollute the ground water if the pollutants are allowed to enter the ground water system through improperly cased wells.

14. There will be harassment and/or displacement of some wildlife species because of the activities, noise, elimination of small patches of habitat, etc.

15. Polluted streams can be toxic to many wildlife species.

16. There may be damage to range improvements. Damaged fences may result in livestock mixups which will increase rancher expenses, while damaged water developments may result in lower calf weights.

17. Noxious weeds may become established on disturbed areas.

18. Road cut and fill slopes are barriers to livestock and wildlife movement. Some trails may be plugged or eliminated.

19. There may be damages to existing pipelines, power lines, ditches, structures, etc. Owner or permittee expenses may increase if they check improvements more frequently to ensure possible damages are found and repaired.

20. Activities will harass livestock so that grazing patterns are altered which may result in a reduction of calf

weights and a reduction in the number of cows that are bred or that conceive. Lower calf weights and fewer calves will result in an income reduction for ranchers.

21. Ranchers' expenses may be increased if they have to spend more time looking after their livestock and improvements to ensure against mixups, harassment, rustling, etc.

22. Use of explosives may crack bedrock, thus creating new ground water aquifers that may divert water from existing springs and developments.

23. The use of 800 gallons of water per day while drilling can cause local water shortages for wildlife and livestock.

24. The visual resource will be effected only lightly due to limited activity in this phase.

B. Development Phase -- Most of those effects listed under the exploration phase will also apply to the development phase. However, these effects will probably increase in number and/or size during the development phase. Additional effects are as follows:

1. The local, State, and National economies may be strengthened.

2. An influx of people into the local communities may cause schools, hospitals, police and fire services, etc. to be overloaded during the early stages of development.

3. There may be a shortage of housing, office space, industrial sites, etc. during the early stages of development.

4. The construction and development necessary to meet the shortages discussed in items a and b above may be rapid and unplanned, thus creating an unsightly, not very stable, hodgepodge.

5. The rural economy of the area, an economy primarily based on farming, ranching, and recreation, may be changed to an industrial economy, an economy based on exploration, development, and production of oil and gas.

6. It is anticipated that there will be an influx of a skilled or semi-skilled labor force with their families which may influence local lifestyles, values, and customs.

7. Visual effects will increase as the number of wells increase due to additional roads, drill pads, and mud sumps, etc.

C. Production Phase - Effects will be greatest during the production phase. Generally, the same effects mentioned under the exploration and development phases will apply to the production phase but to a larger degree. Examples: There will be more soil disturbance and elimination of patches of wildlife habitat because there will be more roads and facilities, there will be more harassment of wildlife and livestock because there will be more activity, there will be greater modification to the landscape because there will be more facilities, etc.

An observer sees a landscape in terms of the dominate elements of form (shape), line, color, and texture. Using these dominate elements, the following chart is an evaluation of the general anticipated visual contrast that will result from some of the dominant activities and features involved in the oil and gas operations.

General Anticipated* Visual Contrast
(Production Phase)

	Form Contrast	Line Contrast	Color Contrast	Texture Contrast	Overall Visual Contrast
1. Roads		X	0		0
2. Drilling Tower	X	0		0	0-X
3. Storage Tanks	X		0	0	0-X
4. Utility Services		0			
5. Camp and Buildings	0		0	0	0
6. Disposal Ponds	0		0		0
7. 4" Pipelines (flow lines)		0	0		0

X	High Contrast
0	Moderate Contrast
	Low Contrast

* Actual visual contrast will depend on the landscape's ability to absorb modification, the relationships to the naturally established forms, lines, colors, and textures that dominate in a particular area, the distance viewed, and the arrangement and layout of facilities; these factors will vary accordingly in each area.

D. Abandonment Phase

1. Some improvements and developments will remain for future use.

2. The industrial economy brought on by oil and gas production may revert back to the original rural economy.

3. There may be a short-term increase in activity as facilities are removed, and disturbed areas are reclaimed and restored. These increased activities may add exhaust and dust pollutants to the air and contribute to wildlife and livestock harassment.

4. Removal of pipelines and storage facilities may increase the probability of spills that will sterilize the soil.

5. People may leave the area upon abandonment - especially if local economies are not diversified sufficiently to absorb them. The remaining population may be impacted with increased taxes to remove indebtedness for facilities and services that are no longer needed.

6. A population decrease may leave vacant houses, offices, industrial sites, etc.

E. Civil Rights

1. It is not anticipated that there will be much change in the job market even if a significant discovery is made. There will probably be more jobs available, but there will also be an increase in the work force to fill the jobs.

2. People may leave the area upon abandonment. The remaining population may then be impacted with increased taxes to remove indebtedness for facilities and services that are no longer needed. This impact will probably have its biggest effect on those with low and fixed incomes.

3. A population decrease may leave vacant housing that may be utilized by low and fixed income groups.

4. A larger population may result in more facilities or programs to care for children of working mothers.

5. Local customs, values, and lifestyles may be influenced by the influx of skilled and semi-skilled labor force.

F. Other Effects

1. Discovery and development of a new oil or gas field will help reduce the United States dependency on foreign fuel.

2. Oil and gas are non-renewable resources that will no longer be available and that cannot be replaced once they are utilized.

3. Removal of gas, oil, and water may cause geological subsidence.

V. ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

A. Small areas of wildlife habitat will be eliminated. This habitat can be restored during the abandonment phase except on those areas where spills sterilize the soil.

B. Exploration, development, production, and abandonment activities will harass and/or displace both wildlife and livestock. Major problems such as disturbing golden eagles during nesting season can be eliminated in at least two ways. 1) Restrictions and special stipulations can be made a part of leases, permits, operating plans, etc. 2) The entire study area, or portions of the study area, can be withdrawn from oil and gas leasing. However, unless the entire area is closed, there will be some harassment and/or displacement of wildlife and livestock.

C. There will be some soil loss due to erosion of disturbed areas. Proper road locations, standards, and other management practices will reduce the amount of soil lost through wind and water erosion, but soil loss cannot be completely eliminated.

D. Noxious weeds will invade on disturbed sites. Adequate management practices will greatly reduce the amount of weeds that will invade, but the invasion cannot be completely prevented nor can the weeds be completely eliminated after invasion.

E. Ranchers will spend more time looking after their livestock. Expenses to the rancher will be more than normal.

F. Use of explosives may crack bedrock, thus creating new ground water aquifers that may divert water from existing springs and developments. The effects of this would be expenses of developing new springs, expenses of hauling water while new springs are being developed, loss in calf weights, reduction in calf crops because of changes in grazing patterns, and elimination of wildlife habitat and watering places.

G. An oil and gas field will affect local, state, and national economies. The major impact, however, will be at the local level. Depending on one's viewpoint, this impact can be good or bad, or there can be good aspects and bad aspects. There will, however, be an impact.

H. Construction and developments necessary to meet shortages in public services as a result of population increases will add to the tax base. Debts for public services may remain long after abandonment of the oil and gas field. Good city- and county planning can help alleviate this impact, but it is doubtful the impact can be completely eliminated.

I. Local lifestyles, values, and customs may be influenced by the anticipated influx of skilled and semi-skilled labor. This impact can be good or bad - depending on one's viewpoint.

J. The developments and facilities needed for oil and gas production will create an adverse impact on the visual quality of the landscape. Most of these impacts can be eliminated at the conclusion of the operation, but some impacts may be long-term.

VI. ALTERNATIVES TO THE PROPOSED ACTION

A. Deny Oil and Gas Leasing - The Forest Service has the authority to deny oil and gas leasing on those lands acquired under Title III of the Bankhead-Jones Farm Tenant Act, while the BLM has the authority to deny oil and gas leasing on the other Federal lands and on the private lands with Federal ownership of the oil and gas resources.

Although a decision not to issue oil and gas leases will ensure that exploration, development, and production will not occur on the Federal lands within the study area, it is possible that these activities will not be carried out on the Federal lands even if leases are issued. Most of the time, the lessee makes application for sufficient acreage to protect himself from competitive speculation.

Exploration and development can occur on the adjacent and intermingled private lands, and if oil and gas were discovered on the intermingled private land, there would probably be a demand created for roads and pipelines across the adjacent Federal lands. However, in those areas where a significant portion of the land is in Federal ownership, withholding leases might discourage exploration and development of the private lands because of the inability of the applicant to control a proposed exploration area.

Since there are no proven oil and gas reserves in Oregon, a decision to withhold additional Federal lands from leasing might not have an obvious and immediate effect on the nation's energy supply and demand relationships. Past drilling in the state has produced only signs of oil and gas, however, and the possibility remains that Federal leasing could lead to commercial discoveries. To some extent, therefore, a decision to not lease Federal lands in the study area could increase the nation's efforts to search for energy in other more sensitive areas.

If a discovery is made on private lands within the study area and a decision is made to extract the oil and gas, denying leases may cause the adjacent private land and landowners to absorb most of the impacts.

B. Issue Oil and Gas Leases With No Surface Disturbance or Occupancy - As mentioned earlier, application is generally made for much more area than is actually needed to develop the resource in order to protect against competitive speculation. Approving applications with no surface occupancy can allow the lessee to protect investments made on adjacent and intermingled private lands.

Directional drilling is the practice of drilling at one location to reach oil and gas below another location that may be as much as one-half mile away from the drill site. With current technology and in areas of suitable geology, a well can be drilled one foot horizontally for every two feet drilled vertically. However, it is estimated that one-half mile is the maximum distance that directional drilling can be effective within the study area. Therefore, directional drilling might be an effective means of extracting oil and gas below some Federal lands without allowing surface disturbance or occupancy.

Approval of oil and gas leasing with no surface occupancy may result in the private land and landowners absorbing most of the impacts if a discovery is made on the private land, and the decision is made to extract oil and gas. If significant discoveries are made on the private lands, there may be a demand for pipelines and access roads across Federal lands.

C. Preclude Surface Disturbance or Occupancy on Specific Tracts - On some areas, it may be appropriate to consider the alternative of prohibiting disturbance or occupancy of the surface by drilling rigs and other facilities or activities associated with oil and gas exploration and development. Examples of such areas include streamside buffer strips, scenic corridors, recreation sites, steep slopes, or other tracts where surface disturbance or occupancy will result in undue adverse environmental impacts.

Surface disturbance or occupancy of specific tracts may be precluded by withholding a tract from leasing or by stipulating that oil and gas can only be removed by directional drilling from sites outside of the precluded tract.

D. Issue Leases (and Operating Permits) With Special Stipulations - On April 30, 1976, Notice to Lessees and Operators of Federal and Indian Onshore Oil and Gas Leases (NTL-6) was published by the Geological Survey in the Federal Register. The Notice became effective on June 1, 1976.

The Notice provides for close coordination and consultation between oil and gas lessee or operator, the U.S. Geological Survey District Engineer, and the appropriate surface management agency regarding any proposed leasehold operations or construction activities. It specifically requires that all drilling permit applications submitted to the Geological Survey be accompanied by a detailed multi-point surface use and operation plan. The USGS District Engineer will send a copy of such plan to the appropriate surface management agency where the plan will be reviewed for adequacy. The lessee or operator must also furnish a map (scale not less than 1 inch equals 1 mile) which shows the preferred drilling location(s) and general topographic features of the area.

An environmental analysis is prepared by the Geological Survey with input by the surface management agency. The surface management agency recommends to the Geological Survey the conditions or stipulations to which the proposed surface disturbing operations will be subject, and these conditions or stipulations become a part of the drilling permit.

If resource or user conflicts are noted, a joint field inspection may be held in which the lessee or operator and other interested parties may participate. The purpose of such an inspection is to select the most feasible and environmentally acceptable areas for well sites, access roads, and other proposed surface uses. During this period of consultation and review, the surface management agency has the opportunity to indicate directly to the lessee or operator what will be or will not be acceptable.

Lessees or operators are also required to submit for the approval of the USGS District Engineer a suitable plan prior to undertaking any subsequent new construction, reconstruction, or alteration of existing facilities on any lease when additional surface disturbance will result. Emergency repairs can be conducted without prior approval provided that prompt notification is provided to the USGS District Engineer.

As can be seen from the above, there is ample opportunity to include special stipulations as part of an approved drilling permit on a case-by-case basis. As the specific needs for stipulations usually are not known until plans of operation are submitted by the lessee, it is the feeling of the Bureau of Land Management and the Geological Survey that special stipulations be included as part of the approved drilling permit rather than as part of the oil and gas lease. (This position is confirmed in an August 5, 1976 letter from the Bureau of Land Management to Regional Forester T.A. Schlapfer.)

Notwithstanding the above concerning special stipulations, Form 3109-5 (Surface Disturbance Stipulations) should be made a part of each lease on Federal lands, and Form 3109-3 (Stipulation for Lands Under Jurisdiction of Department of Agriculture) should be made a part of leases involving National Forest lands. (See Figures 3 and 4.)

E. Issue Leases For Any Area and Without Stipulations - The National Environmental Policy Act, Multiple Use Act, and other acts, and the dramatic upsurge in environmental concern, make it imperative that responsive environmental analysis be an integral part of the decision making process. This analysis, together with an environmental statement when appropriate, is to assist in reaching decisions or making recommendations on programs and activities. The decisions and recommendations arrived at in the analysis process must become a part of the project permits or plans in the form of special stipulations in order to assure that the decisions and recommendations are carried out and environmental impacts are not allowed to occur, or the impacts are mitigated to acceptable standards.

F. Recommendation Concerning Alternatives - The recommendation is to issue oil and gas leases combining alternatives C and D. This will allow development of the oil and gas resource while preventing or mitigating environmental impacts.

VII. RELATIONSHIP BETWEEN SHORT-TERM USES OF THE ENVIRONMENT AND THE MAINTENANCE OF LONG-TERM PRODUCTIVITY

A. General - Short-term use refers to the period during which oil and gas operations will take place. The duration may vary from a period of several months if exploratory drilling were unsuccessful to 50 or more years if commercial amounts of oil and gas are discovered. Long-term use is considered to be that period of time beyond the point when all possible restoration has been completed.

Leasing lands for oil and gas development involves the commitment of oil and gas resources plus the resources of the site(s) involved. Some land uses can coexist with oil and gas operations without problems developing, or some land uses can coexist with oil and gas operations only after much coordination, or there can be any range in between.

The purpose of the exploration and testing phase of oil and gas leasing is to determine the nature and extent of oil and gas resources. The active portion of this phase is short, sometimes only lasting days or months. However, this activity may be intense and continuous. When exploration proves unsuccessful, there will not be subsequent use of the land for development and production of oil and gas. Such leases will terminate at the end of the 10-year period, or in many cases, be relinquished at an earlier date so additional lease payments will not have to be made. Lease and permit provisions will provide that disturbed lands be restored as nearly as possible to their original condition.

If exploration reveals oil and gas in commercial quantities, development and production will begin. The life of an oil field is generally 10 to 50 years. When the reservoir is depleted, facilities are dismantled and removed, the lands are restored as nearly as possible to their original conditions, and the leases are terminated.

Except for the roads and other earth movement work, areas should soon return to near natural conditions. There may be changes in the vegetative composition of the disturbed sites, depending on whether native or introduced plant species are used to restore the disturbed sites. The native bluebunch wheatgrass will not restore itself if disturbed.

B. Water - Water used for drilling, 800 gallons per day, can be hauled onto drill sites from outside the subject area if water shortages develop. Those impacts that may cause erosion can be sufficiently controlled so that erosion will not be significant in the long-term. Degradation or deviation of ground water aquifers may be significant in the long-term, and long-term productivity of streams and lakes can be reduced if blowouts, spills, or leaks pollute the streams or lakes.

C. Soil - Long-term productivity will be reduced or eliminated in areas where the soil has been sterilized by blowouts, spills, leaks, or mudpits, and in some areas, where the top soil has been removed. Erosion can be controlled sufficiently so that it will be of significance only in the short-term. Soil compaction is short-term because it can be corrected during restoration.

D. Wildlife - Pollution of streams and lakes by blowouts, spills, and leaks may restrict long-term productivity of aquatic species. The small amount of sedimentation that reaches the streams and lakes as a result of the oil and gas operations will not normally restrict long-term productivity of aquatic species.

Normally, harassment will not restrict long-term wildlife productivity. An exception to this might be continual harassment of the golden eagle and prairie falcon during nesting seasons so they are driven from the area.

E. Air - Reactions in the atmosphere resulting from pollutants produced during the oil and gas operation might continue for many years after operations cease. The interactions of the pollutants in the atmosphere are not completely understood at this time, but the net impact of this operation on the long-term productivity of the air is expected to be negligible.

F. Vegetation - Just as the pollution of streams and lakes may restrict long-term productivity of aquatic animal life, polluted streams may restrict long-term productivity of aquatic vegetation.

Soil sterilization and removal of the top soil may limit long-term vegetation production and, as mentioned earlier, the native bluebunch wheatgrass will not restore itself to disturbed areas.

G. Landscape Character - Oil and gas field facilities will constitute a visual intrusion during the short-term life of the operations. However, it is anticipated that the restoration procedures can eliminate all but a very few of the visual impacts. Roads and other major earth movement works will present restoration problems and may be significant in the long-term.

H. Land Uses - Impacts resulting from the oil and gas operations on grazing, recreation, minerals, and special land use will not be significant in the long-term except as they relate to those items already discussed in this section.

I. Historical and Archaeological - Activities which involve surface disturbance are the primary source of destruction to historical and archaeological sites. However, there are controls on oil and gas operations to prevent damage. There will be a provision of the leases or drilling permits that the lessees will engage a qualified archaeologist to make a historical and archaeological survey of all lands to be disturbed or occupied.

J. Oil and Gas - If oil and gas were discovered and produced, its use in the short-term would preclude long-term use of the reserves. If oil and gas activities caused geological subsidence, the effects would be of significance in the long-term.

VIII. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

A. Consumption of the non-renewable oil and gas resource is an irreversible and irretrievable commitment of that resource.

B. Other irreversible and irretrievable commitments that may occur as a result of gas and oil development are:

1. The removal of oil and gas may cause land subsidence.
2. Disturbed areas may not be returned to their original condition.
3. Eroded soils cannot be replaced.
4. Disturbed areas may not be revegetated with the plant species that were removed.

IX. CONSULTATION WITH OTHERS

A letter soliciting comments on the effects of oil and gas leasing and possible development and production was sent to various organized groups and government or quasi-government agencies. Those persons with pending applications for oil and gas leases were also solicited for their comments. A summary of the comments that were received is as follows:

A. Organized groups - No response.

B. Governmental agencies - The Oregon Department of Fish and Wildlife recommended protection of raptor nests, antelope kidding areas, deer winter range, and waterways, and the Bonneville Power Administration recommended protection of existing and planned improvements. Other agencies felt there would be measurable but acceptable effects.

C. Oil and Gas Lease Applicants - The applicants feel that precautions can and will be taken to adequately protect the environment, and the benefits of oil and gas production will far outweigh any ill effects that may occur. The applicants urged completion of this analysis and approval of pending applications with the utmost haste.

X. MANAGEMENT RECOMMENDATIONS, REQUIREMENTS, AND CONSTRAINTS

A. Soil and Water - Management objectives for soil and water are to maintain quantity and quality. The following are needed to help meet these objectives.

1. As prescribed by the Forest Service or BLM officer in charge, seed all disturbed areas to grass. Grass seed will be drilled at 6 pounds per acre during February or March. In areas where a drill cannot manipulate, road cut and fill slopes for example, the grass seed will be covered by other means. Crested wheatgrass will be drilled in crested wheatgrass fields, and Whitmar beardless wheatgrass will be drilled in Whitmar fields and areas of native vegetation.

All seedings will be fertilized. Lessees or operators will have soils analyzed as prescribed by the Forest Service or BLM officer in charge to determine what fertilizers will be required. Fertilizer will be applied within 10 days of the grass seed application.

2. Minimize surface damage by using existing roads or trails whenever possible. Restrict heavy equipment use to constructed roads, and limit light vehicle off-road use to a low, dispersed level.

3. Construct roads in approved locations and to approved standards and specifications. Road reconstruction will also be to approved standards.

4. Preclude operations within 300 feet of any waterway or wet soil area such as meadows, springs, seeps, reservoirs, or streams. When it is necessary for a road to cross a waterway, use approved methods as prescribed by the Forest Service or BLM officer in charge.

5. Restrict off-road equipment use that will compact the soil during periods when the soil is wet.

6. Properly dispose of waste products so that ground and surface waters are not degraded and soils are not sterilized. Dispose of waste water by evaporation rather than pumping into wells, and cover mud pits with soil when they are no longer needed.

7. If practical, use the thumper or vibrator methods to produce shock waves during seismic surveys and preclude the explosive method. This will protect ground water aquifers from disturbance.

8. Control dust on roads and other operation areas with water, oil, gravel, etc. as prescribed by the Forest Service or BLM officer in charge.

9. Haul water from outside the study area if the Forest Service or BLM officer in charge determines that the water used for drilling and dust control will cause a shortage for livestock and wildlife.

10. Block, scarify, seed, and fertilize all unneeded roads at the conclusion of the operation. Seed and fertilizer to be applied as discussed under number 1 of this section. Road blocks and scarifying to be to approved standards.

B. Wildlife - Management objectives are to maintain or increase the unique wildlife species (golden eagle, prairie falcon, and bobcat) and antelope populations, to maintain existing species diversity while accepting slight population fluctuations of other species, and to control conflicts between wildlife and oil and gas operations. The following are needed to help achieve these objectives:

1. The several golden eagle and few prairie falcon nests occurring within the study area are of great wildlife importance. Because it is felt by wildlife biologists that nest locations should not be made public and because each nest site has individual characteristics which control to some extent how close activities can be permitted to the nest, the recommendation concerning nest sites is that a wildlife biologist look at each proposed development site prior to issuance of drilling permits to determine the needs to protect the nests.

   Notwithstanding the above, there should be no activities around nest sites during the months of March - July. The size of area in which activities should be prohibited will be determined on a nest by nest basis.

2. Even though the bobcat is a unique species, there is habitat and he can addpt so that oil and gas operations will not have an adverse effect other than the negligible effect of maybe having to change dens. Therefore, there are no special recommendations concerning the bobcat.

3. Antelope kidding areas can become critical. Because of the difficulty in delineating kidding areas, the Forest Service or BLM will examine each proposed development site prior to issuance of a drilling permit to establish protection criteria.

4. Replace all wildlife habitat as soon as practical after disturbance or abandonment by seeding disturbed areas to grass. Grass seed to be applied as discussed above.

5. Minimize harassment and elimination of habitat by using existing roads and trails whenever possible.

6. Preclude operations within 300 feet of any waterway, wet soil area, or water development.

7. Block all unnecessary roads at the conclusion of operations. The Forest Service or BLM will determine which roads will be blocked.

8. Dispose of waste products properly so that waters are not polluted. Dispose of waste water by evaporation.

9. Keep all major wildlife trails open. Construct access ramps on road cut and fill slopes where trails cross roads or where prescribed by the Forest Service or BLM officer in charge.

10. Preclude occupancy or disturbance within the Headquarters Wetland area. (See Wildlife Map.)

C. Grazing - The grazing objectives are to supply forage that is necessary to help stabilize the operations of the ranchers permitted to use the area and maintain wildlife populations and to control conflicts between grazing and oil and gas operations. The following are needed to help meet these objectives:

1. Construct livestock access ramps in all new road cut and fill slopes where the roads intersect existing livestock trails or where prescribed by the Forest Service or BLM officer in charge. Keep trails open and usable.

2. Place cattleguards where new roads, or existing roads that will be used in the operation, cross fences.

3. Replace vegetative cover by seeding all disturbed areas as discussed above.

4. Eliminate, in so far as practical, noxious weeds that invade as a result of oil and gas operations. Use methods as prescribed by the Forest Service and BLM.

5. Repair to acceptable standards any damage to fences and water developments immediately after damage occurs.

6. Preclude operations within 300 feet of water developments and salt areas.

D. Recreation - Except for the Haystack Reservoir Campground, the objective is to manage the study area for dispersed types of recreation such as hunting, hiking, etc. The objective at Haystack Campground is to maintain a safe, sanitary facility. The following are needed to help meet these objectives:

1. Preclude surface activities within the Haystack Reservoir recreational complex. Extract any oil or gas under the complex by off-site directional well drilling.

2. Ensure against any land subsidence within the Haystack complex.

3. Take necessary precautions to prevent air pollution such as watering, oiling, or graveling roads, and seeding disturbed areas.

E. Scenic and Aesthetic - To have a quality visual environment is an increasing concern for almost everyone. An atmosphere of scenic beauty, a naturally established setting, offers a more pleasant experience for people to live, work, and play in. The following are needed to help maintain a quality visual environment:

1. Retention Zones - Management activities will not be visually evident. Activities may only repeat form, line, color, and texture which are frequently found in the characteristic landscape. Changes in their qualities of size, amount, intensity, direction, pattern, etc. will not be evident.

   Immediate reduction of contrasts in form, line, color, and texture necessary to meet retention will be accomplished either during operation or immediately after. It may be done by such means as seeding vegetative clearings and cut and fill slopes, hand planting of large stock, painting structures, etc.

2. Partial Retention Zones - Management activities will remain visually subordinate to the characteristic landscape. Activities may repeat common forms, lines, colors, or textures but changes in their qualities of size, amount, intensity, direction, pattern, etc. will remain visually subordinate.

   Activities may introduce form, line, color, or texture which are found infrequently or not at all in the characteristic landscape, but they will remain subordinate to the visual strength of the characteristic landscape.

   Reduction in contrast of newly introduced form, line, color, and texture to meet partial retention will be accomplished as soon as possible after project completion or, at a minimum, within the first year.

3. Modification Zones - Management activities may visually dominate the original characteristic landscape. However, activities of vegetative and land form alteration must borrow from naturally established form, line, color, or texture so completely and at such scale that its visual characteristics are those of natural occurrences within the surrounding area or character type. Other activities such as structures or roads must remain visually subordinate to the landscape character.

   Activities which are predominately introduction of facilities such as buildings or roads will borrow naturally established form, line, color, and texture so completely and at such scale that visual characteristics are compatible with the natural surroundings.

   Reduction in contrast of form, line, color, and texture that result will be accomplished within the first year after project completion.

4. Maximum Modification Zones - Management activities of vegetative and land form alterations may dominate the characteristic landscape. When viewed from a distance (5+ miles), the visual characteristic must be those of natural occurrences, but when viewed from close-up (0-5 miles), the activity may not appear to completely borrow from naturally established form, line, color, or texture. Alterations may also be out of scale or contain detail which is incongruent with natural occurrences.

   Introduction of structures or roads will remain visually subordinate when viewed from a distance beyond 5 miles.

   Reduction of contrast in form, line, color, or texture should be accomplished within five years.

mitted to use the area and maintain wildlife populations and to control conflicts between grazing and oil and gas operations. The following are needed to help meet these objectives:

1. Construct livestock access ramps in all new road cut and fill slopes where the roads intersect existing livestock trails or where prescribed by the Forest Service or BLM officer in charge. Keep trails open and usable.

2. Place cattleguards where new roads, or existing roads that will be used in the operation, cross fences.

3. Replace vegetative cover by seeding all disturbed areas as discussed above.

4. Eliminate, in so far as practical, noxious weeds that invade as a result of oil and gas operations. Use methods as prescribed by the Forest Service and BLM.

5. Repair to acceptable standards any damage to fences and water developments immediately after damage occurs.

6. Preclude operations within 300 feet of water developments and salt areas.

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2. Partial Retention Zones - Management activities will remain visually subordinate to the characteristic landscape. Activities may repeat common forms, lines, colors, or textures but changes in their qualities of size, amount, intensity, direction, pattern, etc. will remain visually subordinate.

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   Activities which are predominately introduction of facilities such as buildings or roads will borrow naturally established form, line, color, and texture so completely and at such scale that visual characteristics are compatible with the natural surroundings.

   Reduction in contrast of form, line, color, and texture that result will be accomplished within the first year after project completion.

4. Maximum Modification Zones - Management activities of vegetative and land form alterations may dominate the characteristic landscape. When viewed from a distance (5+ miles), the visual characteristic must be those of natural occurrences, but when viewed from close-up (0-5 miles), the activity may not appear to completely borrow from naturally established form, line, color, or texture. Alterations may also be out of scale or contain detail which is incongruent with natural occurrences.

   Introduction of structures or roads will remain visually subordinate when viewed from a distance beyond 5 miles.

   Reduction of contrast in form, line, color, or texture should be accomplished within five years.

5. Areas of operation will be compatible with existing adjacent zoning and land uses, as well as overall region-wide land use distribution and planning. This will in part help ensure good visual relationships.

6. Each proposed development will be examined by the Forest's or BLM's Landscape Architect prior to issuance of a drilling permit to determine the needs to protect the scenic and aesthetic values. Siting considerations and/or special designs for man-made structures can be considered at this time. Examples are as follows:

   a. Avoid and maintain reasonable distance from major focal points or dominate features in the landscape such as mountain peaks, canyons, geologic formation, water bodies, etc. so that the man-made structural development does not overdominate the natural features.

   b. To the extent practical, design structural facilities to meet existing local or other applicable architectural standards.

   c. Facilities, individually and combined, will be designed using cosmetic treatment to hide them or so they will blend harmoniously with the surrounding environment.

   d. Facilities will have a reasonably artistic and pleasant appearance.

   e. Revegetate areas disturbed from earth movement and other alterations.

   f. Avoid abrupt disturbance to the terrain and tie disturbances gently in with existing contours.

   g. Screen scars which cannot be directly rehabilitated and facilities from the major travel routes.

   h. Maintain and emphasize the semi-arid landscape character with its wide open qualities with minimum obvious visual obstructions of unrelated forms, colors, textures, and lines of newly introduced features.

   i. Dispose of slash as prescribed by the Forest Service or BLM officer in charge. (Slash disposal will also reduce fire hazard.)

7. Preclude surface activities within the Haystack Reservoir visual experience unit. (See Visual Resource Inventory Map for the location of the Haystack Reservoir experience unit.)

F. Historical and Archaeological - The objective is to preserve all historical and archaeological sites. The following are needed to help meet this objective:

1. Prior to any kind of operation or activity, lessees will engage a qualified archaeologist, acceptable to the Forest Service, BLM, and/or the U.S. Geological Survey, to make an archaeological survey of the lands to be disturbed or occupied.

2. The archaeologist will submit a certified statement to the Forest Service, BLM, and/or Geological Survey that outlines the steps taken in the survey discussed above and the findings thereof as to the existence of antiquities or other objects of historic or scientific interest.

3. If archaeological or historical objects are discovered which might be disturbed by oil and gas operations, the lessees shall take whatever steps as may be required by the Forest Service, BLM, or Geological Survey to protect the objects. Archaeological salvage may be one of the required steps.

G. Special Land Uses - The management objectives are to be responsive to suitable needs for National Forest lands and to control conflicts between special land uses and oil and gas operations. The following are needed to help meet these objectives:

1. Repair damage to improvements immediately after damage occurs.

2. Preclude operations that will affect operation of the existing mining claim.

H. Improvements - Objectives are to maintain improvements to acceptable standards and to control conflicts between improvements and oil and gas operations. The following will help meet these objectives:

1. Preclude surface occupancy and disturbance within the Grassland's field headquarters. (The Grassland's field headquarters is within the Headquarters Wetland area as shown on the Wildlife Map.)

2. Ensure that roads are maintained to acceptable Forest Service or BLM standards. For roads on the Grassland, the Forest Service will decide whether the operators will maintain the roads or whether the operators will pay the Forest Service to maintain roads.

3. Repair any damage to improvements immediately after damage occurs.

4. Keep livestock and wildlife trails open and serviceable.

I. Air - The objective is to maintain air quality. The following will help meet this objective:

1. Revegetate all disturbed areas as soon as practical after disturbance as prescribed by the Forest Servicr or BLM.

2. Control dust from roads or other work areas with water, oil, gravel, etc. as prescribed by the Forest Service or BLM.

3. Exhaust pollutants will be controlled by the Environmental Protection Agency and the Department of Environmental Quality standards.

4. Slash and other wastes will be burned as prescribed by the Forest Service, BLM, and/or U.S. Geological Service.

J. Grassland Agriculture - The Bankhead-Jones Farm Tenant Act directs that the National Grassland restore grass cover to abandoned croplands and demonstrate and promote sound and practical principles of land use.

It has been determined that oil and gas leasing, development, and production is appropriate to the Grassland land management objectives as long as they can be coordinated with other land uses and as long as sound and practical principles of land use are demonstrated. Those recommendations, requirements, and constraints listed above will coordinate oil and gas operations with other uses and demonstrate sound and practical principles of land use.

XI. BIBLIOGRAPHY

Bacon, Warren R. and Paul F. Hansen, 1972, The Visual Management System.

Caraher, David L., 1975, The Crooked River National Grassland and Land Use Planning.

Davis, Dennis L. and et al, 1976, Environmental Analysis Record for Camp Creek Oil and Gas Interest Area in Central Oregon.

Franklin, Jerry F. and C.T. Dryness, 1969, Vegetation of Oregon and Washington.

Oregon Agricultural Experiment Station, 1969, Oregon's Long-Range Requirements for Water, Appendix I-5.

U.S. Department of Agriculture (Forest Service), 1974, National Forest Landscape Management, Vol. 2.

U.S. Department of Agriculture (Soil Conservation Service), 1972, Soil Interpretations for Oregon.

U.S. Department of Agriculture (Soil Conservation Service in cooperation with Oregon Agricultural Experiment Station), 1958, Soil Survey - Deschutes Area, Oregon.

U.S. Department of Agriculture (Soil Conservation Service and Forest Service in cooperation with Oregon Agricultural Experiment Station), 1970, Soil Survey of Trout Creek - Shaniko Area, Oregon.

U.S. Department of Interior and U.S. Department of Agriculture, 1976, Burns-Ochoco Environmental Analysis Record for Proposed Non-Competitive Oil and Gas Leasing.

van Werkhooven, Frank, 1976, Proposed Oil and Gas Leasing - East Side of the Crooked River National Grassland - A Description of the Environment, Potential Impacts, and Mitigating Measures - Analysis of Scenic Quality and Viewing Sensitivity.

XII. PARTICIPATION AND CONCURRENCE (INTERDISCIPLINARY TEAM)

Signature	Position	Area of Expertise
Robert J. Scofield	Fire, Lands, and Recreation Staff	Fire, Lands, and Recreation
C Boyesen	Environmental Coordinator	Environmental Analysis Report Preparation
Perry Brown	Assistant Wildlife Staff	Watershed and Wildlife
Jim Miller	Range Conservationist	Grazing and Watershed
Frank van Werkhooven	Landscape Architect	Cultural Resources and Visual Management
Dale J. Paulsen	Soil Scientist	Soils and Watershed

APPENDIX A

FIGURES

Figure 1 - Federal Oil and Gas Leasing Procedures A-1

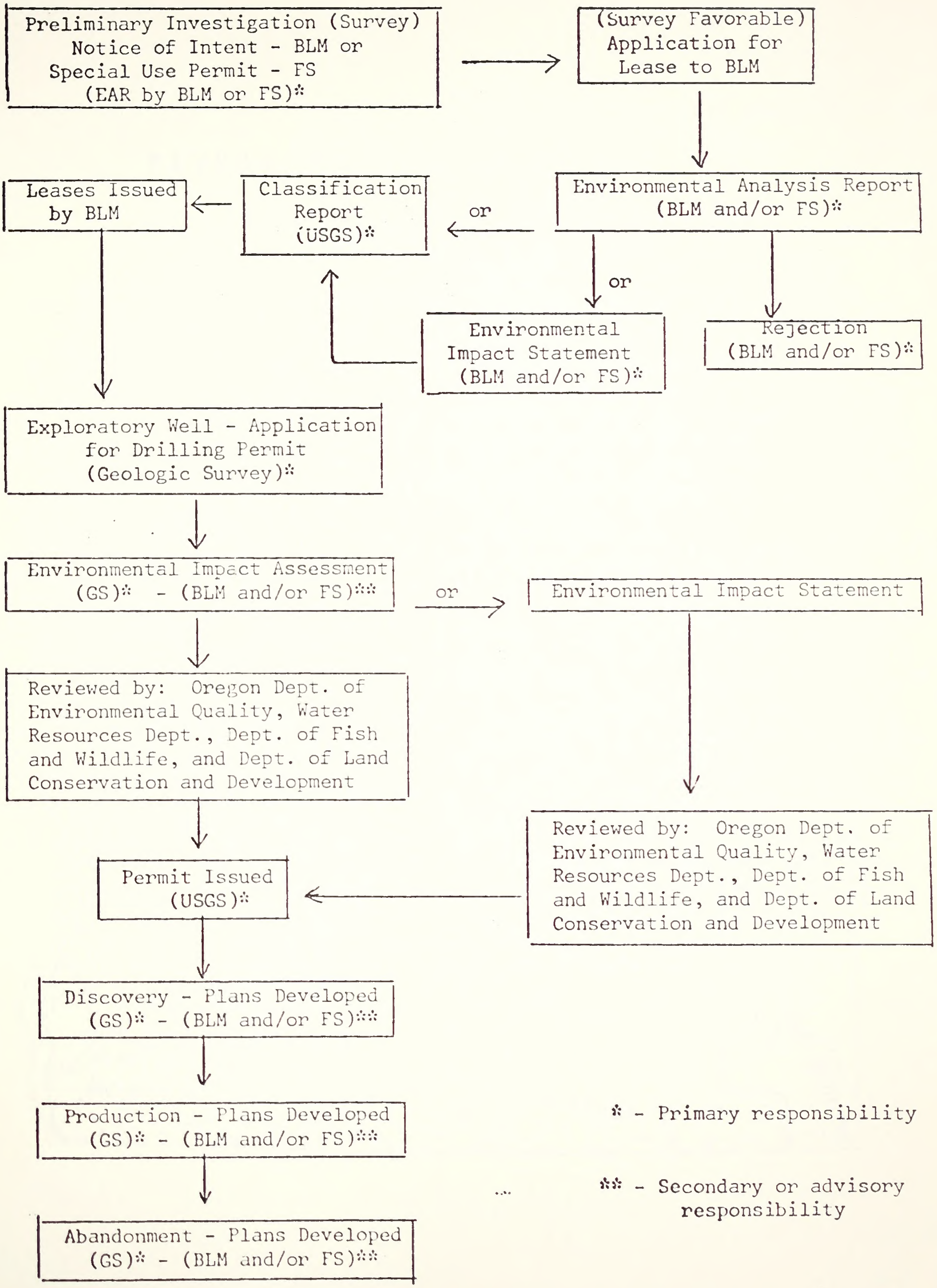
Figure 2 - Visual Character Types A-2

Figure 3 - Surface Disturbance Stipulations A-3

Figure 4 - Stipulation for Lands Under Jurisdiction of Department of Agriculture A-4 & 5

FEDERAL OIL AND GAS LEASING PROCEDURES

Figure 1


Preliminary Investigation (Survey) Notice of Intent - BLM or Special Use Permit - FS (EAR by BLM or FS)*
(Survey Favorable) Application for Lease to BLM
Environmental Analysis Report (BLM and/or FS)*
or
Classification Report (USGS)*
Leases Issued by BLM
or
Environmental Impact Statement (BLM and/or FS)*
Rejection (BLM and/or FS)*
Exploratory Well - Application for Drilling Permit (Geologic Survey)*
Environmental Impact Assessment (GS)* - (BLM and/or FS)**
or
Environmental Impact Statement
Reviewed by: Oregon Dept. of Environmental Quality, Water Resources Dept., Dept. of Fish and Wildlife, and Dept. of Land Conservation and Development
Reviewed by: Oregon Dept. of Environmental Quality, Water Resources Dept., Dept. of Fish and Wildlife, and Dept. of Land Conservation and Development
Permit Issued (USGS)*
Discovery - Plans Developed (GS)* - (BLM and/or FS)**
Production - Plans Developed (GS)* - (BLM and/or FS)**
Abandonment - Plans Developed (GS)* - (BLM and/or FS)**
* - Primary responsibility
** - Secondary or advisory responsibility

VISUAL CHARACTER TYPES

Figure 2

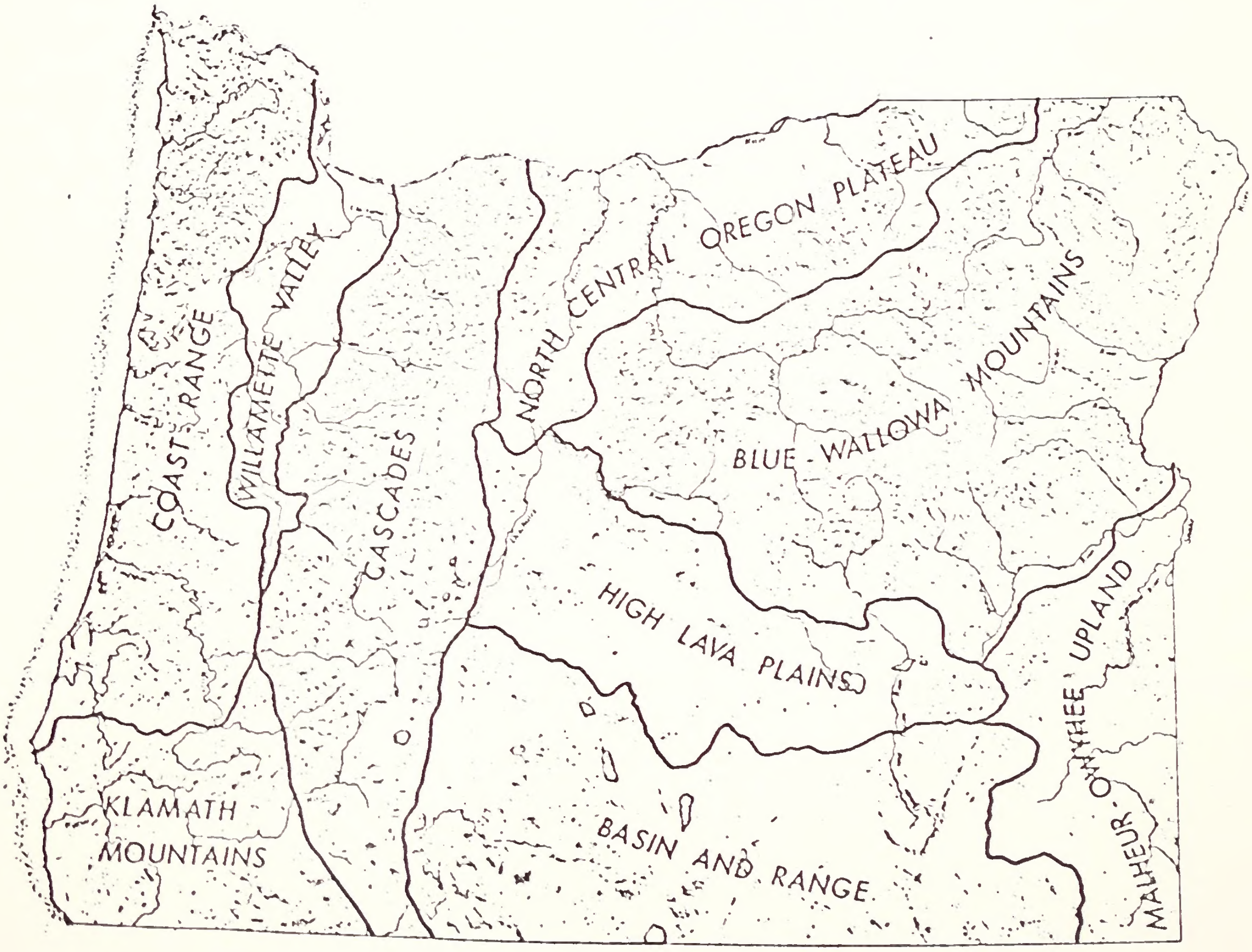


Figure 3

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT **SURFACE DISTURBANCE STIPULATIONS**	**Area Oil and Gas Supervisor or District Engineer** *(Address, include zip code)*
Management Agency *(name)*	Address *(include zip code)*

1. Notwithstanding any provision of this lease to the contrary, any drilling, construction, or other operation on the leased lands that will disturb the surface thereof or otherwise affect the environment, hereinafter called "surface disturbing operation," conducted by lessee shall be subject, as set forth in this stipulation, to prior approval of such operation by the Area Oil and Gas Supervisor in consultation with appropriate surface management agency and to such reasonable conditions, not inconsistent with the purposes for which this lease is issued, as the Supervisor may require to protect the surface of the leased lands and the environment.

2. Prior to entry upon the land or the disturbance of the surface thereof for drilling or other purposes, lessee shall submit for approval two (2) copies of a map and explanation of the nature of the anticipated activity and surface disturbance to the District Engineer or Area Oil and Gas Supervisor, as appropriate, and will also furnish the appropriate surface management agency named above, with a copy of such map and explanation.

An environmental analysis will be made by the Geological Survey in consultation with the appropriate surface management agency for the purpose of assuring proper protection of the surface, the natural resources, the environment, existing improvements, and for assuring timely reclamation of disturbed lands.

3. Upon completion of said environmental analysis, the District Engineer or Area Oil and Gas Supervisor, as appropriate, shall notify lessee of the conditions, if any, to which the proposed surface disturbing operations will be subject.

Said conditions may relate to any of the following:

(a) Location of drilling or other exploratory or developmental operations or the manner in which they are to be conducted;

(b) Types of vehicles that may be used and areas in which they may be used; and

(c) Manner or location in which improvements such as roads, buildings, pipelines, or other improvements are to be constructed.

Form 3109-5 (August 1973)

GPO 849-266

Figure 4
(Page 1 of 2)

Form 3109-3
(June 1971)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

STIPULATION FOR LANDS UNDER JURISDICTION OF DEPARTMENT OF AGRICULTURE*

The lands embraced in this lease or permit being under the jurisdiction of the Secretary of Agriculture, the lessee or permittee hereby agrees:

(1) To conduct all operations authorized by this lease or permit with due regard for good land management, not to cut or destroy timber without first obtaining permission from the authorized representative of the Secretary of Agriculture, and to pay for all such timber cut or destroyed at the rates prescribed by such representative; to avoid unnecessary damage to improvements, timber, crops, or other cover; unless otherwise authorized by the Secretary of Agriculture, not to drill any well, carry on operations, make excavations, construct tunnels, drill, or otherwise disturb the surface of the lands within 200 feet of any building standing on the lands and whenever required, in writing, by the authorized representative of the Secretary of Agriculture to fence or fill all sump holes, ditches, and other excavations, remove or cover all debris, and so far as reasonably possible, restore the surface of the lands to their former condition, including the removal of structures as and if required, and when required by such representative to bury all pipelines below plow depth.

(2) To do all in his power to prevent and suppress forest, brush, or grass fires on the lands and in their vicinity, and to require his employees, contractors, subcontractors, and employees of contractors or subcontractors to do likewise. Unless prevented by circumstances over which he has no control, the lessee or permittee shall place his employees, contractors, subcontractors, and employees of contractors and subcontractors employed on the lands at the disposal of any authorized officer of the Department of Agriculture for the purpose of fighting forest, brush, or grass fires on or originating on the lands or on adjacent areas or caused by the negligence of the lessee or permittee or his employees, contractors, subcontractors and employees of contractors and subcontractors, with the understanding that payment for such services shall be made at rates to be determined by the authorized representative of the Secretary of Agriculture, which rates shall not be less than the current rates of pay prevailing in the vicinity for services of a similar character: *Provided*, that if the lessee or permittee, his employees, contractors, subcontractors, or employees of contractors or subcontractors, caused or could have prevented the origin or spread of said fire or fires, no payment shall be made for services so rendered.

During periods of serious fire danger to forest, brush, or grass, as may be specified by the authorized representative of the Secretary of Agriculture, the lessee or permittee shall prohibit smoking and the building of camp and lunch fires by his employees, contractors, subcontractors, and employees of contractors or subcontractors within the area involved except at established camps, and shall enforce this prohibition by all means within his power: *Provided*, that the authorized representative of the Secretary of Agriculture may designate safe places where, after all inflammable material has been cleared away, campfires may be built for the purpose of heating lunches and where, at the option of the lessee or permittee, smoking may be permitted.

The lessee or permittee shall not burn rubbish, trash, or other inflammable materials *except* with the consent of the authorized representative of the Secretary of Agriculture and shall not use explosives in such a manner as to scatter inflammable materials on the surface of the lands during the forest, brush, or grass fire season, *except* as authorized to do so or on areas approved by such representative.

The lessee or permittee shall build or construct such fire lines or do such clearing on the lands as the authorized representative of the Secretary of Agriculture decides is essential for forest, brush, and grass fire prevention which is or may be necessitated by the

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* This form of stipulation may be used in connection with leases and permits issued under the Acts of February 25, 1920, as amended (30 U.S.C. 181 *et seq.*); August 7, 1947 (30 U.S.C. 351 *et seq.*), February 7, 1927, as amended (30 U.S.C. 281 *et seq.*); April 17, 1926, as amended (30 U.S.C. 271 *et seq.*); June 28, 1944 (58 Stat. 483–485); September 1, 1949 (30 U.S.C. 192c), June 30, 1950 (16 U.S.C. 508b), or under the authority of any of the Acts cited in Section 402 of the President's Reorganization Plan No. 3 of 1946 (5 U.S.C. 133y–16, Note).

Figure 4
(Page 2 of 2)

exercise of the privileges authorized by this lease or permit, and shall maintain such fire tools at his headquarters or at the appropriate location on the lands as are deemed necessary by such representative.

(3) In the location, design, construction, and maintenance of all authorized works, buildings, plants, waterways, roads, telegraph or telephone lines, pipelines, reservoirs, tanks, pumping stations, or other structures or clearance, the lessee or permittee shall do all things reasonably necessary to prevent or reduce to the fullest extent scarring and erosion of the lands, pollution of the water resources and any damage to the watershed. Where construction, operation, or maintenance of any of the facilities on or connected with this lease or permit causes damage to the watershed or pollution of the water resources, the lessee or permittee agrees to repair such damage and to take such corrective measures to prevent further pollution or damage to the watershed as are deemed necessary by the authorized representative of the Secretary of Agriculture.

(4) If in the opinion of the authorized representative of the Secretary of Agriculture, the lands are valuable for watershed protection, the lessee or permittee shall provide for control of surface runoff and return the affected area to as productive condition as practicable.

(5) To pay the lessor or permitter or his tenant or the surface owner or his tenant, as the case may be, for any and all damage to or destruction of property caused by the lessee's or permittee's operations hereunder; to save and hold the lessor or permitter or the surface owner or their tenants harmless from all damage or claims for damage to persons or property resulting from the lessee's or permittee's operations under this lease or permit.

(6) To recognize existing uses and commitments, in the form of Department of Agriculture grazing, timber cutting, and special use permits, water developments, ditch, road, trail, pipeline, telephone line, and fence rights-of-way and other similar improvements, and to conduct his operations so as to interfere as little as possible with the rights and privileges granted by these permits or with other existing uses.

(7) To install and maintain cattle guards to prevent the passage of livestock in any openings made in fences by the lessee or permittee or his contractors to provide access to the lands covered by this lease or permit for automotive and other equipment.

(8) If lessee or permittee shall construct any camp on the lands, such camp shall be located at a place approved by the authorized representative of the Secretary of Agriculture, and such representative shall have authority to require that such camp be kept in a neat and sanitary condition.

(9) To comply with all federally-approved rules and regulations of the Secretary of Health, Education, and Welfare governing the emission of pollutants into the air from activities which are embraced in this lease or permit.

(10) To comply with all the rules and regulations of the Secretary of Agriculture governing the national forests or other lands under his jurisdiction which are embraced in this lease or permit.

(11) Unless otherwise authorized, prior to the beginning of operations to appoint and maintain at all times during the term of this lease or permit a local agent upon whom may be served written orders or notices respecting matters contained in this stipulation, and to inform the authorized representative of the Secretary of Agriculture, in writing, of the name and address of such agent. If a substitute agent is appointed, the lessee or permittee shall immediately so inform the said representative.

(12) To address all matters relating to this stipulation to

at

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who is the authorized representative of the Secretary of Agriculture, or to such other representative as may from time to time, be designated, provided that such designation shall be in writing and be delivered to the lessee or permittee or his agent.

(Signature of Lessee)

GPO 850-292

APPENDIX B

MAPS

Land Ownership B-1

Land Status B-2

Pending Applications B-3

Soil Types B-4

Wildlife B-5

Visual Resource Inventory B-6

Range Improvements B-7

Special Land Uses B-8

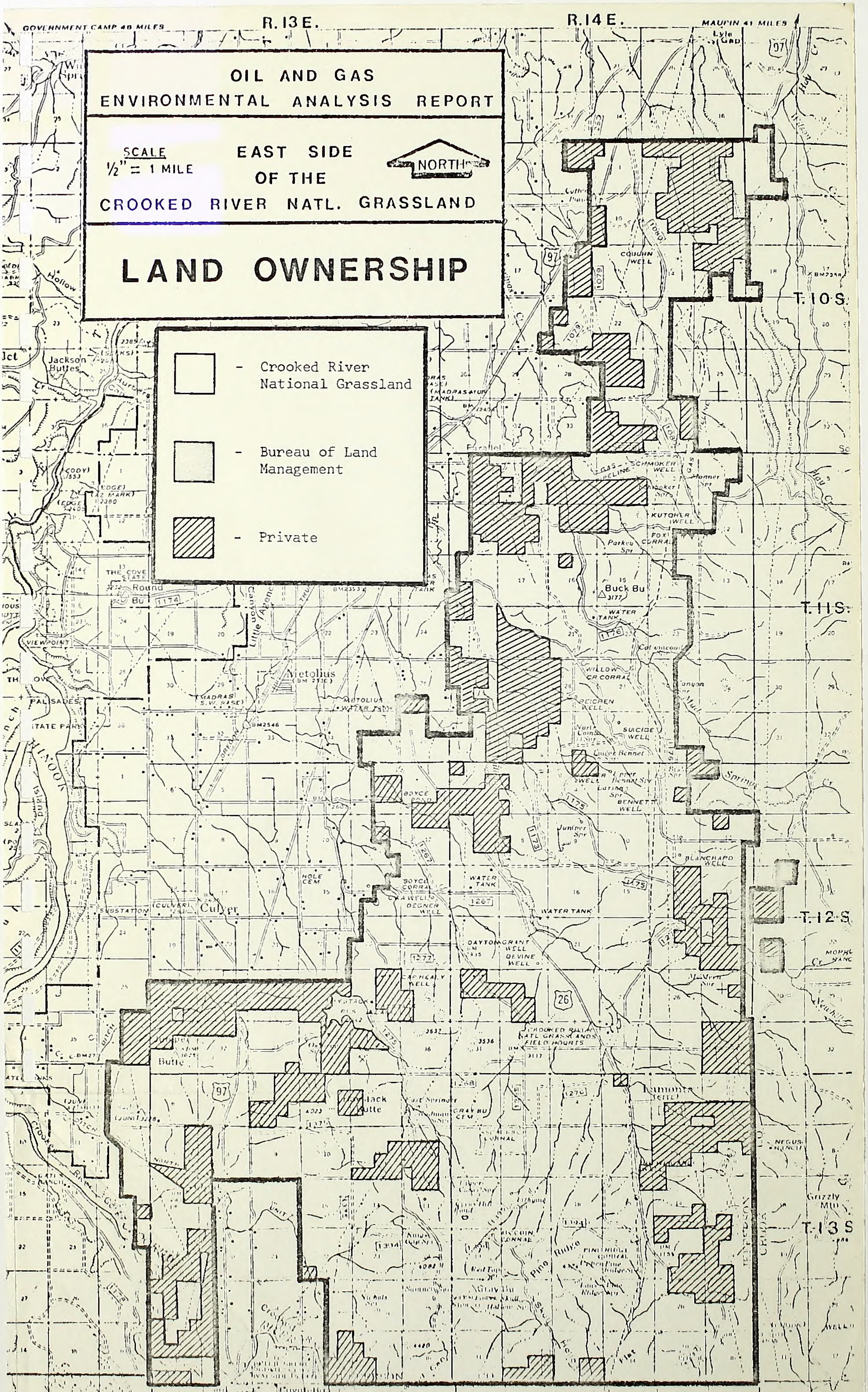
Visual Quality Objectives B-9

OIL AND GAS ENVIRONMENTAL ANALYSIS REPORT

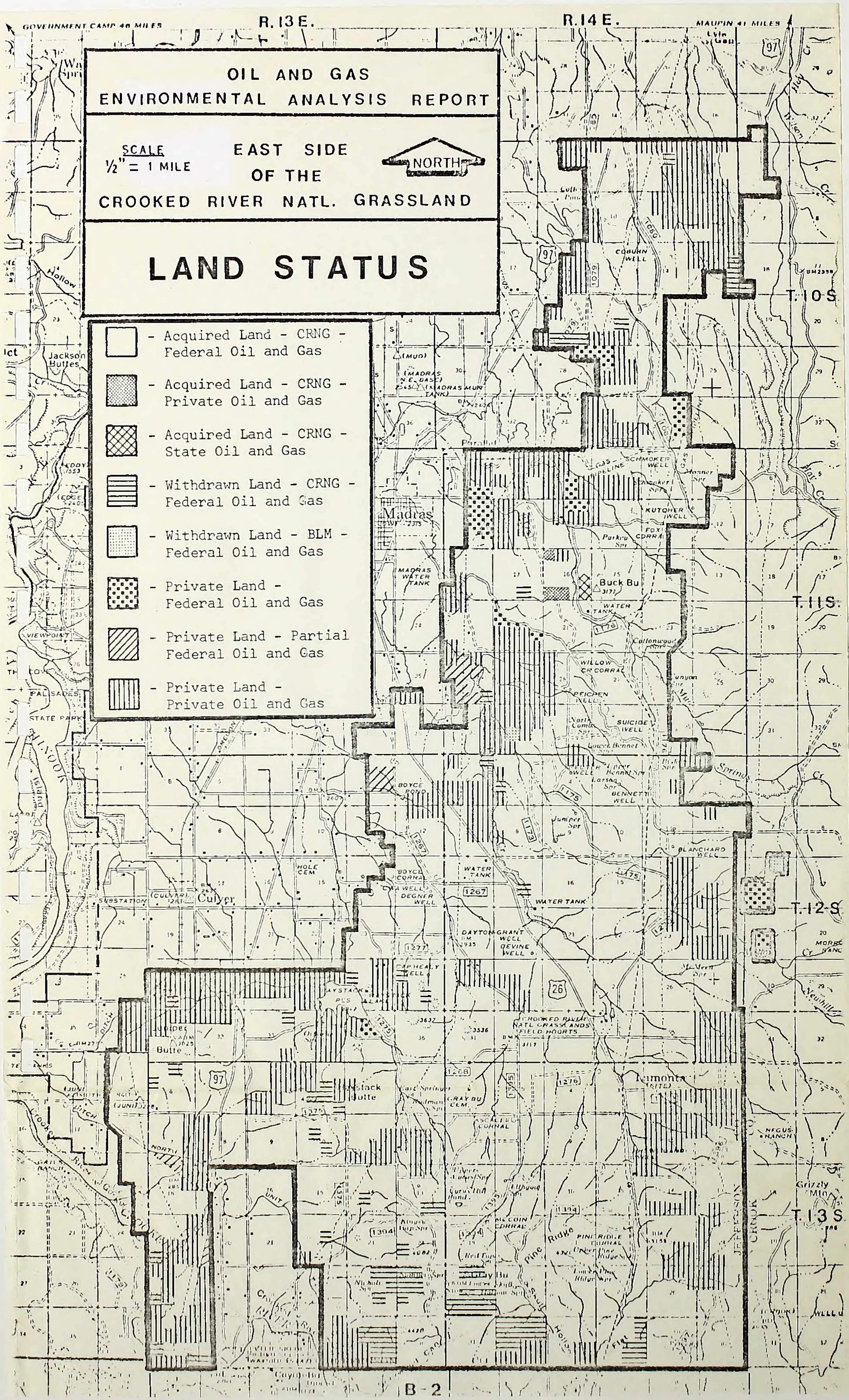
SCALE
½" = 1 MILE

EAST SIDE OF THE CROOKED RIVER NATL. GRASSLAND

LAND OWNERSHIP



- ☐ - Crooked River National Grassland
- ▨ - Bureau of Land Management
- ▨ - Private



OIL AND GAS ENVIRONMENTAL ANALYSIS REPORT

SCALE
½" = 1 MILE

EAST SIDE OF THE CROOKED RIVER NATL. GRASSLAND

NORTH

LAND STATUS

□ - Acquired Land - CRNG - Federal Oil and Gas

▒ - Acquired Land - CRNG - Private Oil and Gas

▩ - Acquired Land - CRNG - State Oil and Gas

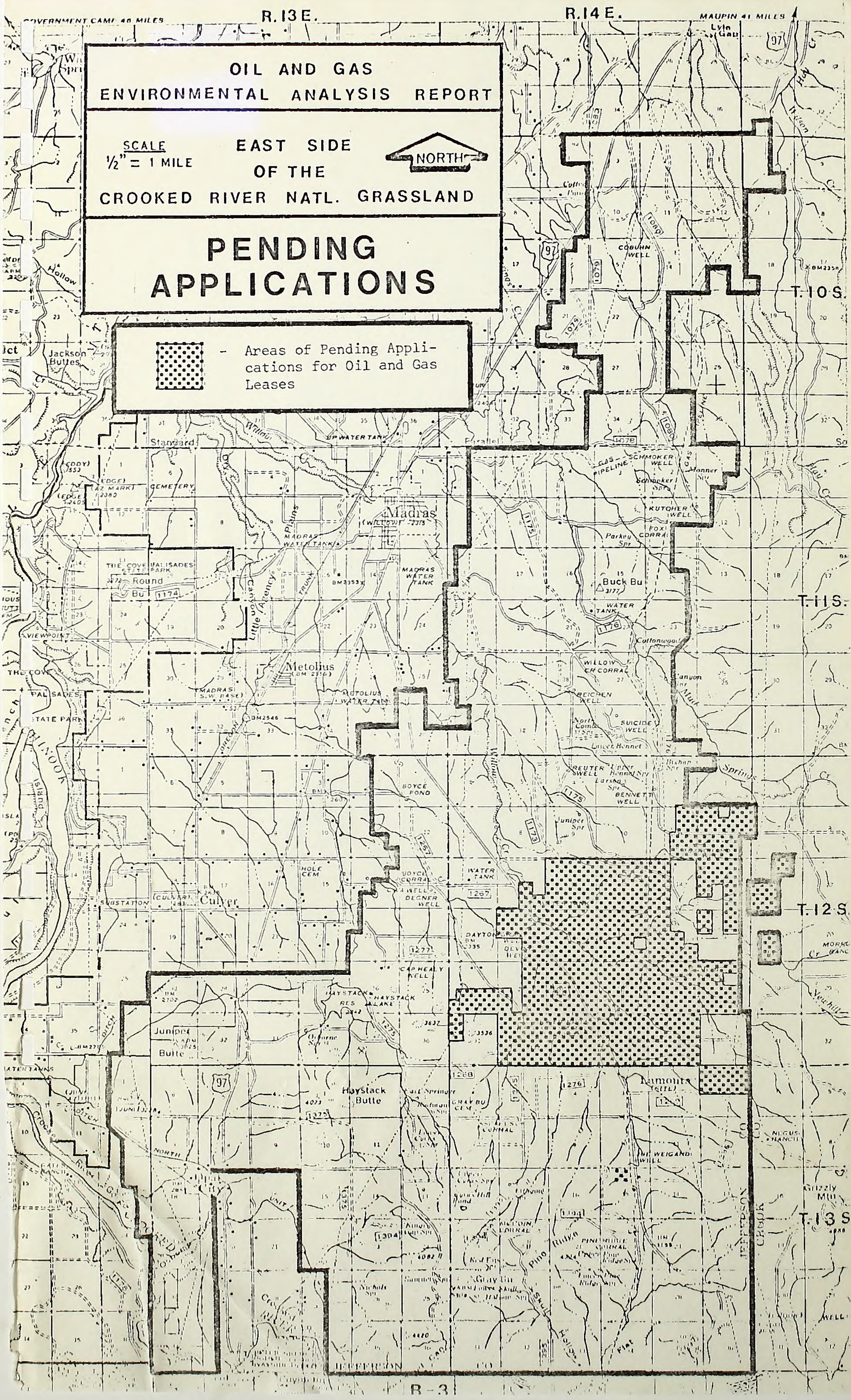
▤ - Withdrawn Land - CRNG - Federal Oil and Gas

░ - Withdrawn Land - BLM - Federal Oil and Gas

⁙ - Private Land - Federal Oil and Gas

▨ - Private Land - Partial Federal Oil and Gas

▥ - Private Land - Private Oil and Gas



OIL AND GAS
ENVIRONMENTAL ANALYSIS REPORT

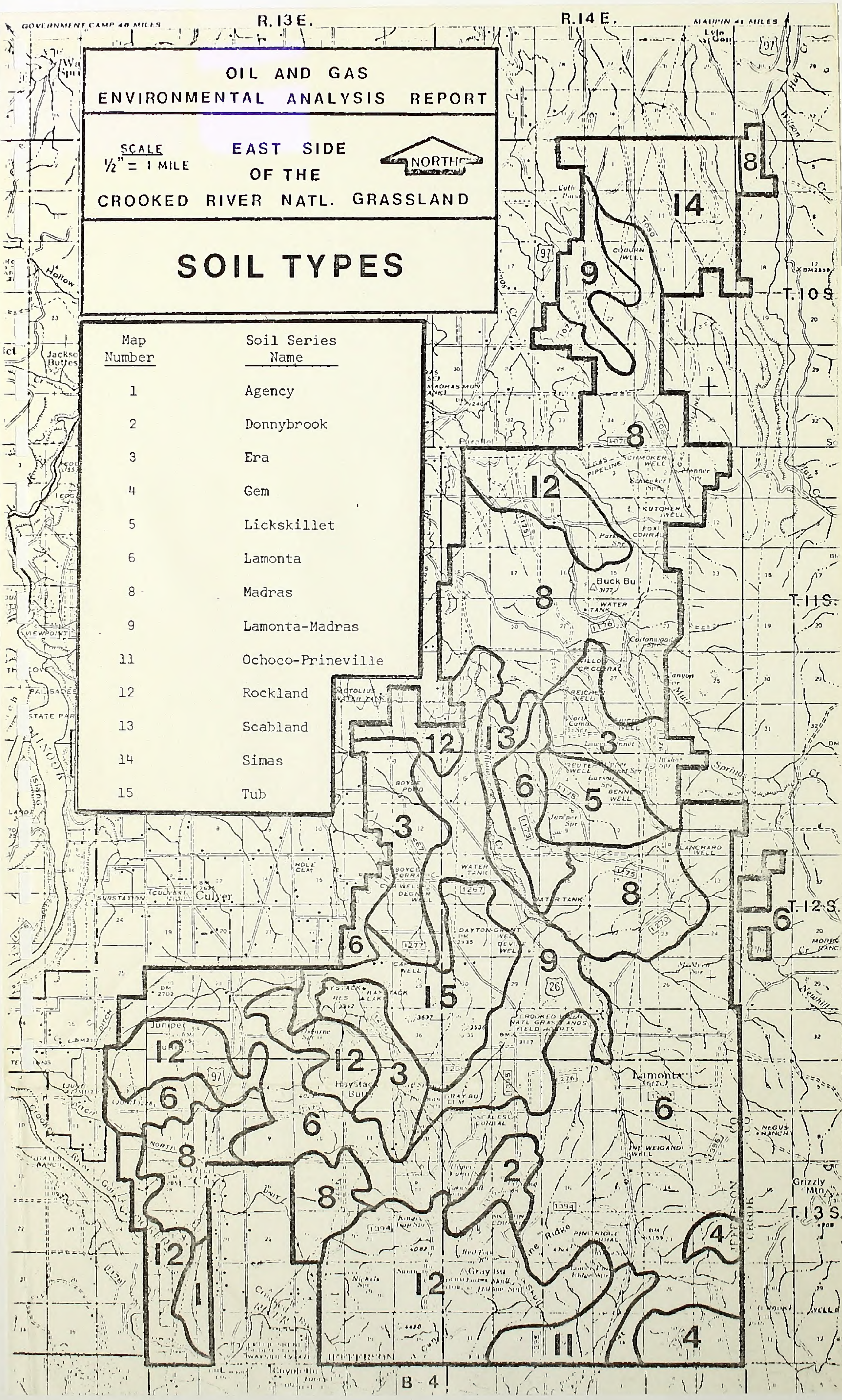
SCALE
½" = 1 MILE

EAST SIDE
OF THE
CROOKED RIVER NATL. GRASSLAND

NORTH

PENDING APPLICATIONS

▩ - Areas of Pending Applications for Oil and Gas Leases



OIL AND GAS ENVIRONMENTAL ANALYSIS REPORT

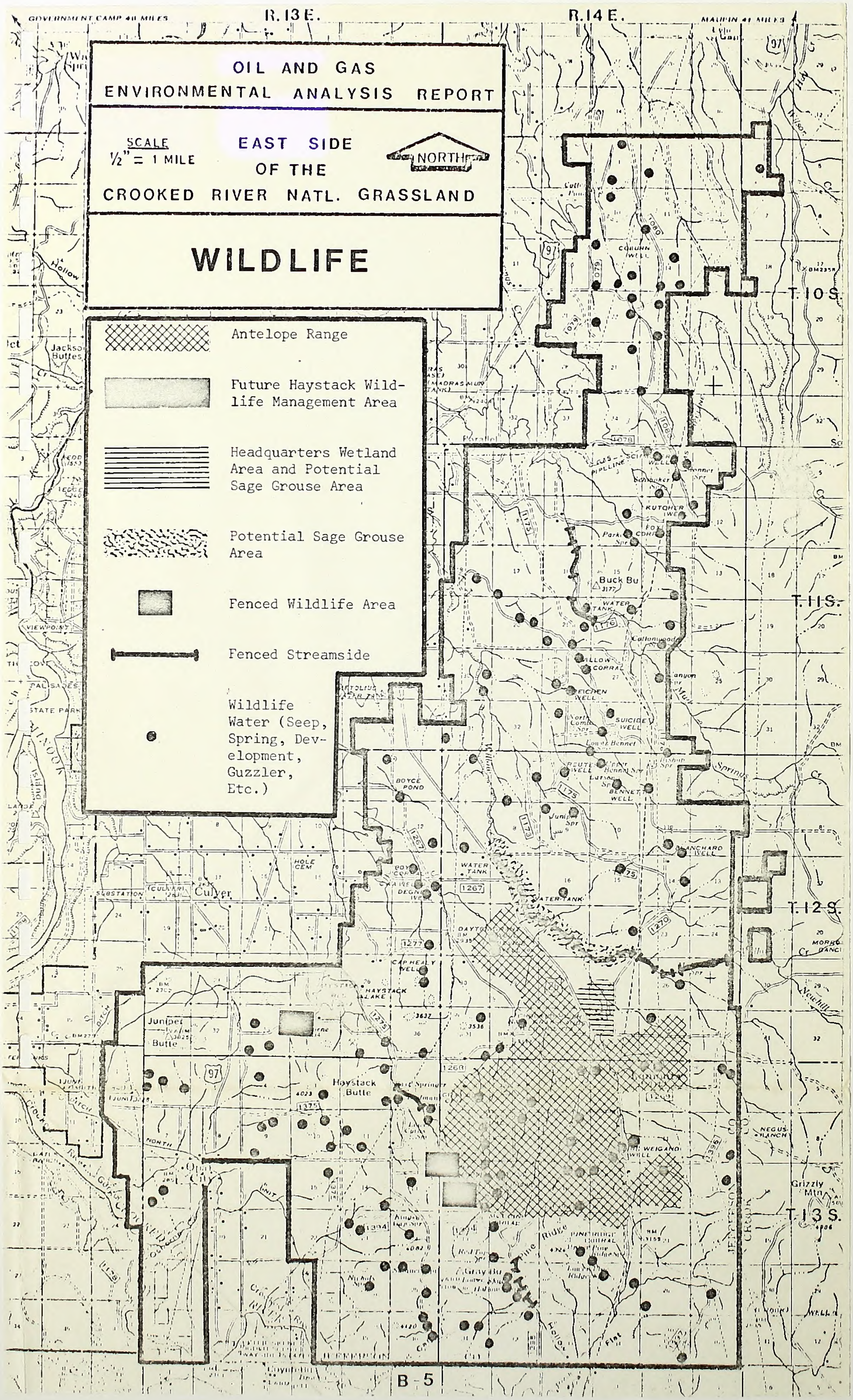
SCALE
½" = 1 MILE

EAST SIDE
OF THE
CROOKED RIVER NATL. GRASSLAND

NORTH

SOIL TYPES

Map Number	Soil Series Name
1	Agency
2	Donnybrook
3	Era
4	Gem
5	Lickskillet
6	Lamonta
8	Madras
9	Lamonta-Madras
11	Ochoco-Prineville
12	Rockland
13	Scabland
14	Simas
15	Tub



OIL AND GAS ENVIRONMENTAL ANALYSIS REPORT

SCALE
½" = 1 MILE

EAST SIDE OF THE CROOKED RIVER NATL. GRASSLAND

NORTH

WILDLIFE

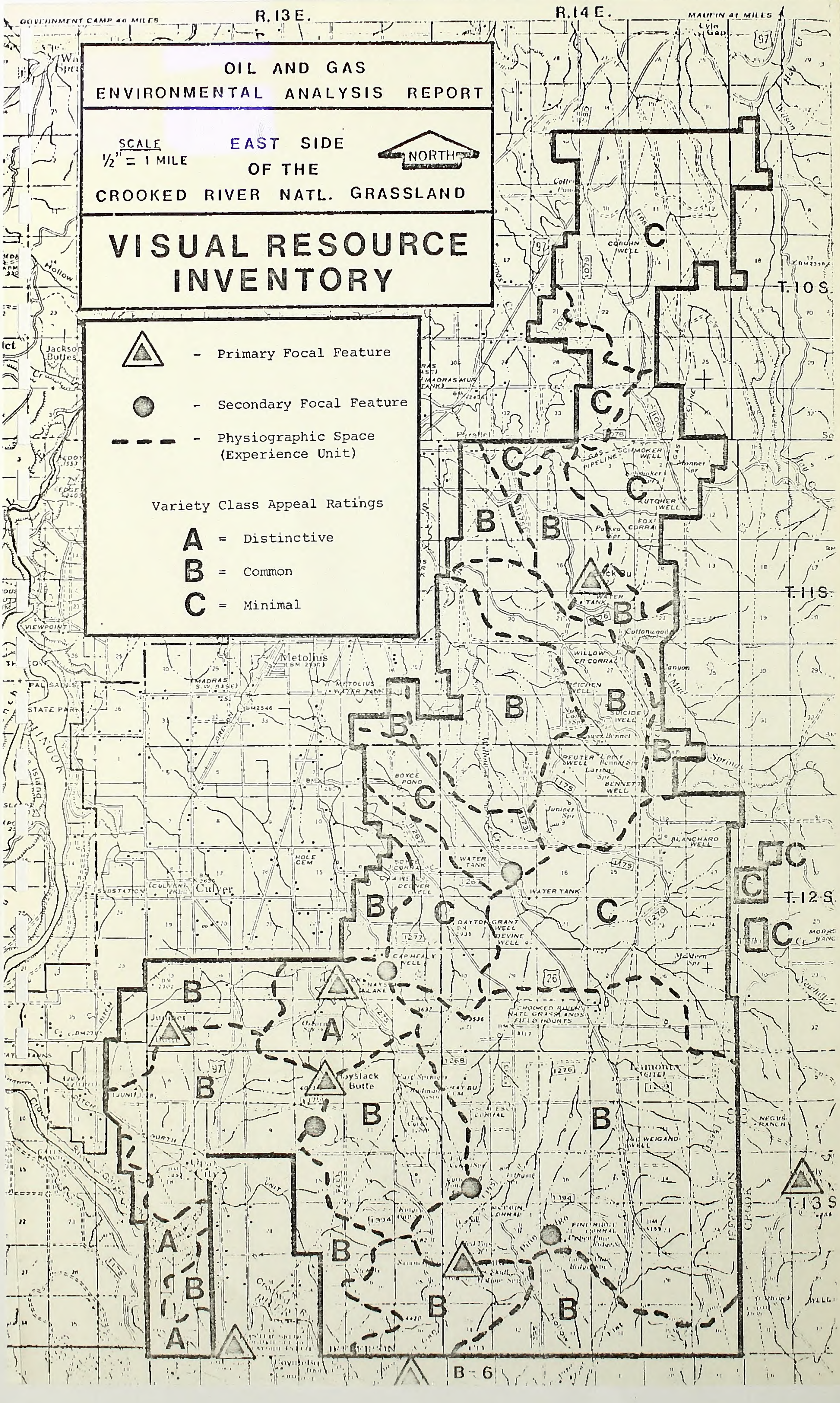
▩	Antelope Range
▒	Future Haystack Wildlife Management Area
☰	Headquarters Wetland Area and Potential Sage Grouse Area
▨	Potential Sage Grouse Area
■	Fenced Wildlife Area
├─┤	Fenced Streamside
●	Wildlife Water (Seep, Spring, Development, Guzzler, Etc.)

OIL AND GAS
ENVIRONMENTAL ANALYSIS REPORT

SCALE
½" = 1 MILE

EAST SIDE
OF THE
CROOKED RIVER NATL. GRASSLAND

VISUAL RESOURCE INVENTORY



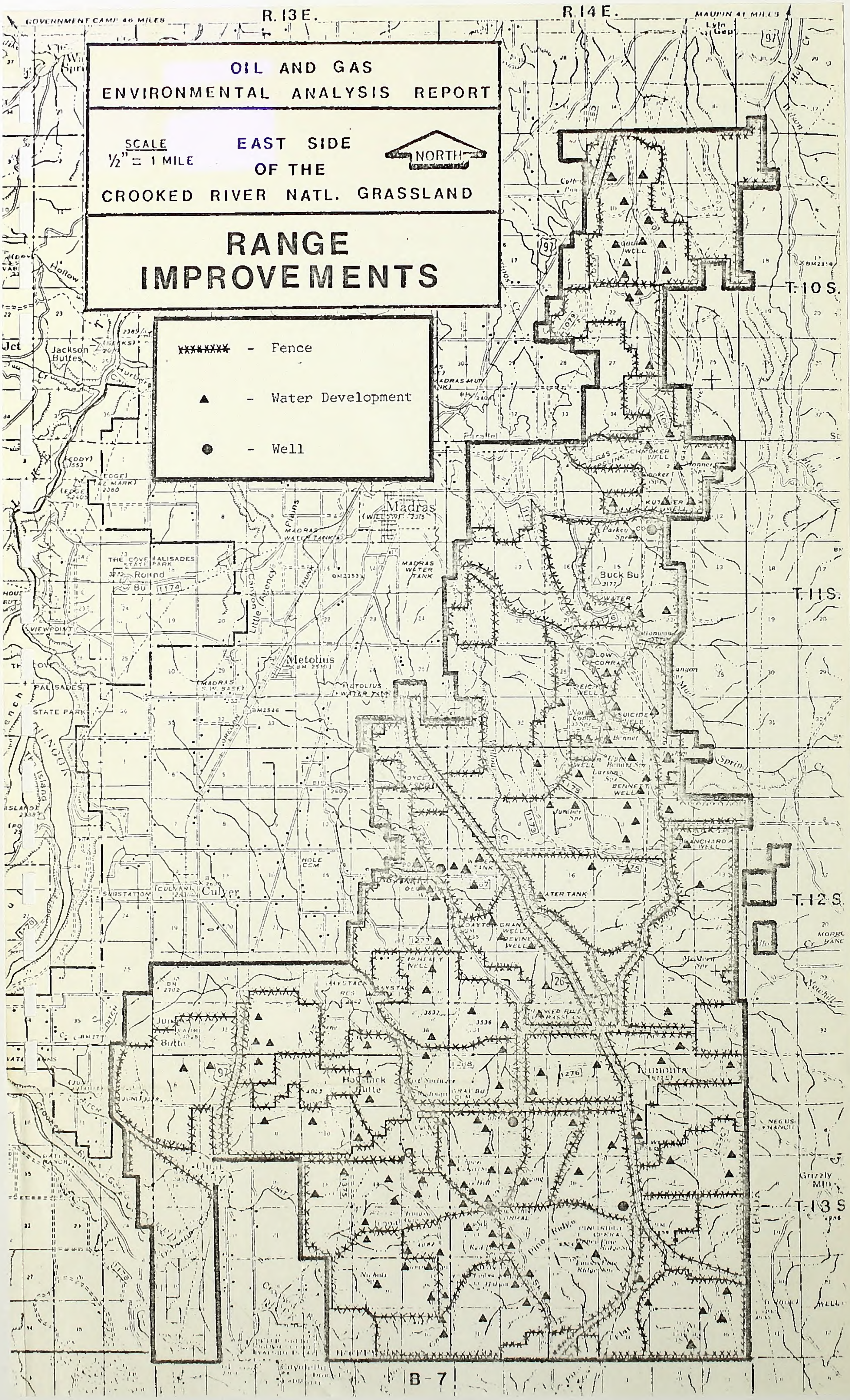
▲ - Primary Focal Feature

● - Secondary Focal Feature

- - - - Physiographic Space (Experience Unit)

Variety Class Appeal Ratings

A = Distinctive
B = Common
C = Minimal



OIL AND GAS ENVIRONMENTAL ANALYSIS REPORT

SCALE
½" = 1 MILE

EAST SIDE OF THE CROOKED RIVER NATL. GRASSLAND

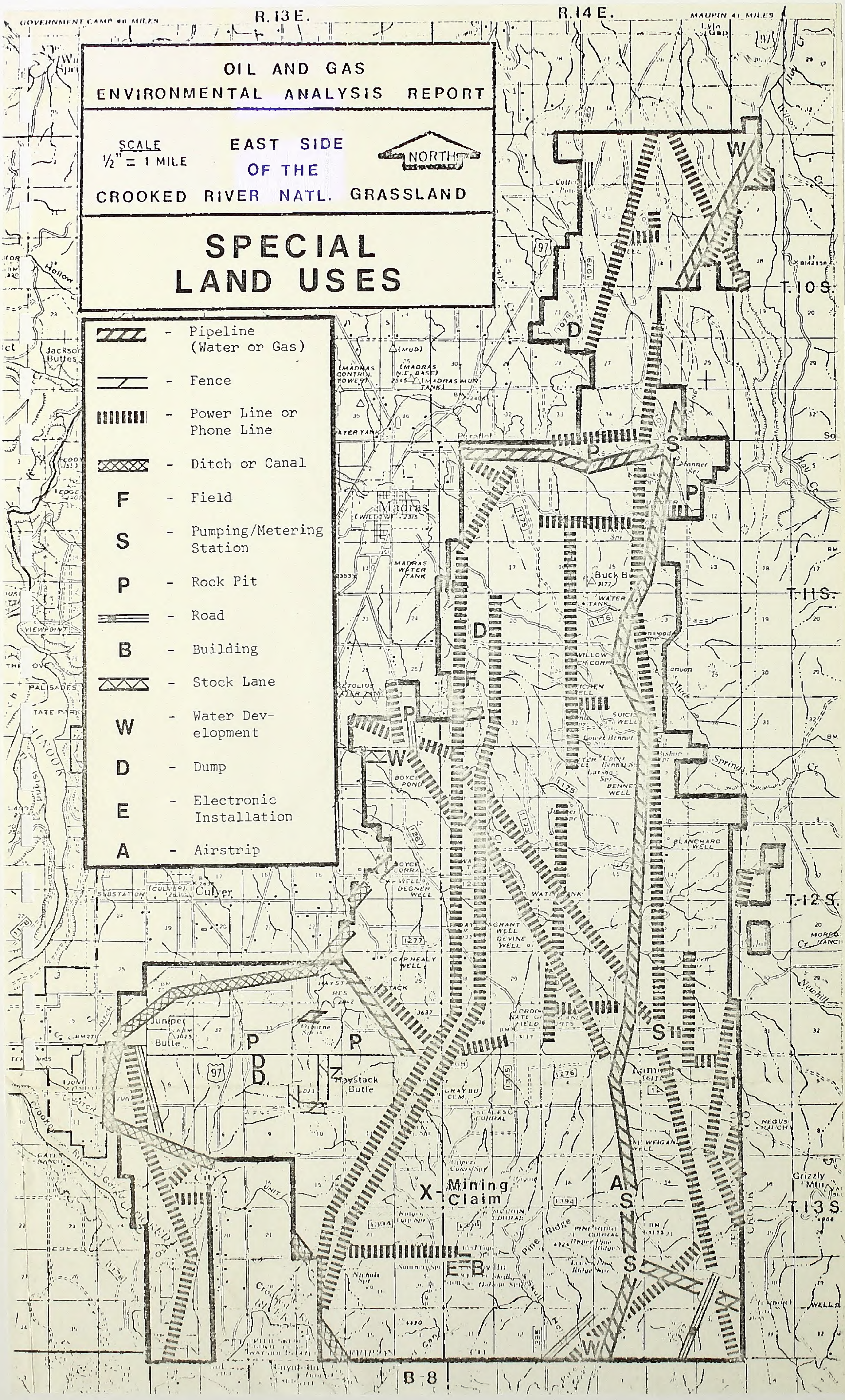
NORTH

RANGE IMPROVEMENTS

xxxxxxxx - Fence

▲ - Water Development

● - Well



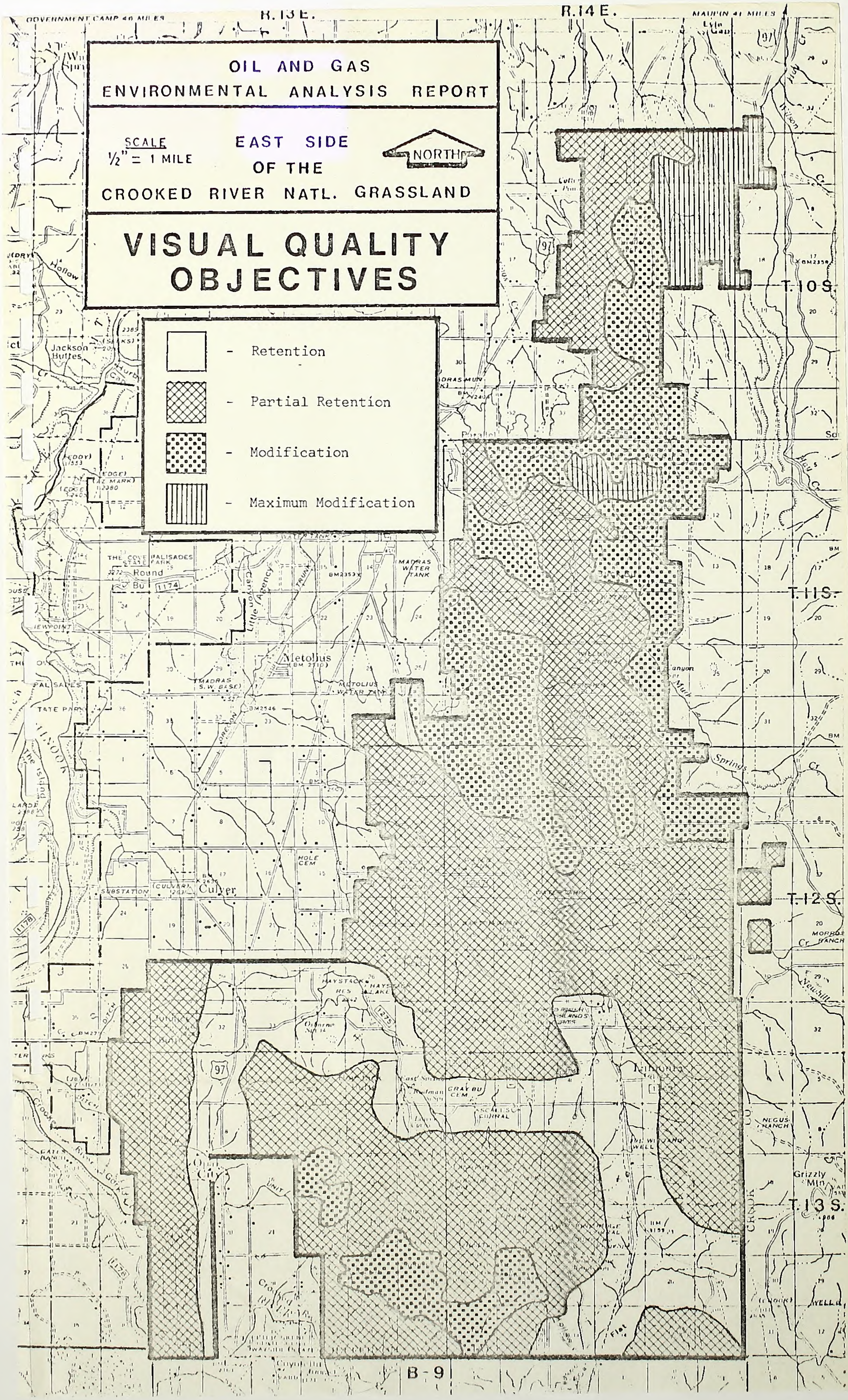
OIL AND GAS ENVIRONMENTAL ANALYSIS REPORT

SCALE
½" = 1 MILE

EAST SIDE OF THE CROOKED RIVER NATL. GRASSLAND

NORTH

SPECIAL LAND USES



OIL AND GAS ENVIRONMENTAL ANALYSIS REPORT

SCALE
1/2" = 1 MILE

EAST SIDE OF THE CROOKED RIVER NATL. GRASSLAND

NORTH

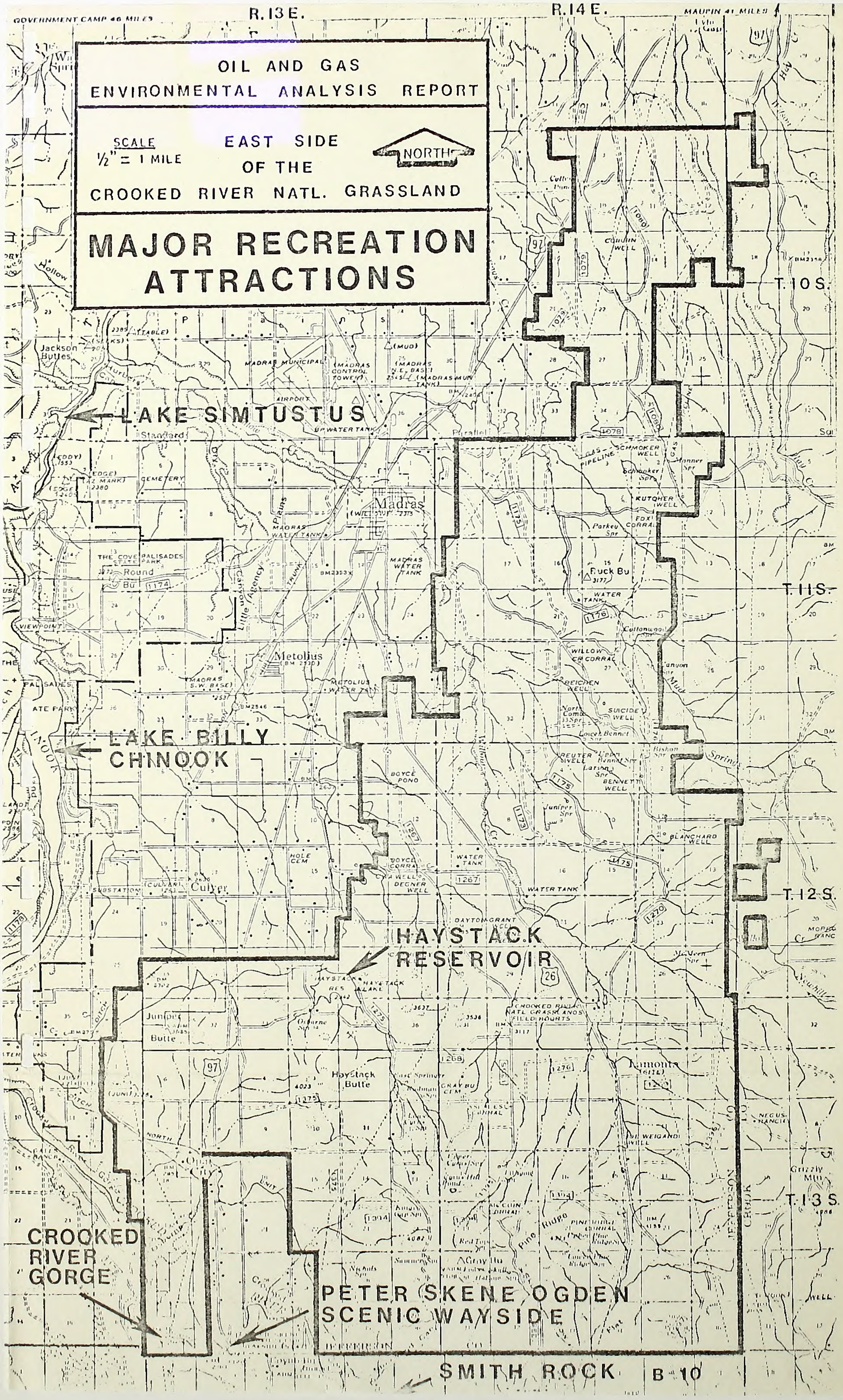
VISUAL QUALITY OBJECTIVES

☐ - Retention

▩ - Partial Retention

▦ - Modification

▥ - Maximum Modification



OIL AND GAS ENVIRONMENTAL ANALYSIS REPORT

SCALE
1/2" = 1 MILE

EAST SIDE OF THE CROOKED RIVER NATL. GRASSLAND

NORTH

MAJOR RECREATION ATTRACTIONS

APPENDIX C

CULTURAL RESOURCE STIPULATIONS TO OIL AND GAS LEASES ISSUED IN OREGON

CULTURAL RESOURCE STIPULATIONS
TO OIL AND GAS LEASES
ISSUED IN OREGON

Prior to any operations under this lease, the Lessee will engage a qualified professional, acceptable to the Authorized Officer, to make a survey of the land to be disturbed or occupied. A certified statement, signed by the qualified professional, setting out the steps taken in the survey and the findings thereof as to the existence of antiquities or other objects of historic or scientific interest, shall be submitted to the Authorized Officer. If the statement indicates the existence of such materials which might be disturbed by operations under this lease, the Lessee shall take such mitigating actions as may be required by the Authorized Officer, including but not limited to archaeological salvage or protective measures or avoidance of the site, to protect and preserve such objects. Such objects shall remain the property of the Lessor, or the surface owner if other than the Lessor.

If a cultural resource is discovered during project operations, activities will be stopped until a survey of the materials is completed by a professional engaged by the Lessee and acceptable to the Authorized Officer, including but not limited to archaeological salvage or protective measures or avoidance of the site, to protect and preserve the materials. Such materials shall remain the property of the Lessor, or the surface owner if other than the Lessor.

APPENDIX D

GEOLOGICAL SURVEY'S NOTICE TO LESSEES AND OPERATORS OF FEDERAL AND INDIAN ONSHORE OIL AND GAS LEASES (NTL-6)

DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
CONSERVATION DIVISION

Notice to Lessees and Operators of Federal and Indian Onshore Oil and Gas Leases
(NTL-6)

APPROVAL OF OPERATIONS

In accordance with the National Environmental Policy Act of 1969 (83 Stat. 852), the United States Geological Survey must assure that operations on oil and gas leases under its jurisdiction are conducted with due regard for protection of the environment. All operations which are conducted on onshore Federal and Indian oil and gas leases must conform to the requirements of this Notice as well as those contained in the lease and in the Oil and Gas Operating Regulations, Title 30 CFR Part 221. Operations on Osage Indian oil and gas leases and exploration activities under Title 43 CFR 3045 are not included within the purview of this Notice.

As used in this Notice, the term "District Engineer" means that Officer of the United States Geological Survey who is the head of the District Office supervising operations in the geographic area in which the operation is located. In the State of Alaska, the Area Oil and Gas Supervisor will administer the requirements of this Notice. In some special instances, other Area Oil and Gas Supervisors will act on permit applications.

I. General

In order that the environmental impact of proposed operations may be properly evaluated, all applications to conduct leasehold operations or construction activities must be accompanied by an appropriate surface use plan. As a minimum, such applications and surface use plans must provide a detailed description of the technical aspects of the proposed operation or activity, the magnitude of surface disturbance involved, and the procedures to be followed in rehabilitating the surface once the operation or construction activity has been completed. Specific requirements in this regard are set forth in Sections II.B., III., and V. hereof. One copy of the surface use plan must be attached to each copy of the application to conduct operations or construction activities.

Applications to conduct operations or construction activities with attached surface use plans should be filed at least 30 days in advance of the contemplated starting date of any operation or construction activity in order to allow sufficient time in which to schedule and conduct, if necessary, a joint field inspection by appropriate personnel of the Geological Survey, the Federal surface management agency, the lessee or operator, and, if practical, the lessee's or operator's contractors and subcontractors who will perform the work. Any interested party who wishes may also attend the field inspection. The early filing of a complete application is no guarantee that approval thereof will be granted within the 30-day period, as environmental considerations or the volume of applications in the affected Federal agencies may result in more than 30-day delay.

All applications will be processed as quickly as possible in all Federal agencies consistent with other work in the offices. In general, the processing of applications will be assigned a high priority and individual applications will be processed according to the date the complete application is filed. A higher priority due to an emergency, such as an imminent lease expiration date, will be duly considered but no special consideration will be given simply because a late filing is made. If it is not possible for Geological Survey action to be taken prior to lease expiration or within 30 days of the filing date, whichever occurs first, the lessee or operator will be advised both orally and in writing. Said advice will detail the reasons for the delay so that the lessee or operator may take such appeal or other recourse as is allowed by law and/or regulation.

Lessees and operators have the responsibility to see that their exploration, development, production, and construction operations are conducted in a manner which (1) results in diligent development and efficient resource recovery; (2) affords adequate safeguards for the environment; (3) results in the proper rehabilitation of disturbed lands; (4) assures the protection of the public health and safety; and, (5) conforms with the best available practice. In that regard, lessees and operators will be held fully accountable for their contractors' and subcontractors' compliance with the requirements of the approved permit and surface use plan.

All approvals of proposed operations as well as subsequent instructions and regulation thereof will be by the District Engineer of the Geological Survey. However, the Federal surface management agency will establish the rehabilitation requirements and will be available for consultation during rehabilitation operations. Names, addresses, and phone numbers of appropriate personnel of the Geological Survey and the Federal surface management agency, as well as approved surface use areas, will be furnished the lessee or operator with its approved copy of the permit and surface use plan.

Lessees and operators, as well as their contractors and subcontractors, must not commence any operation or construction activity on a lease without the prior approval of the appropriate official of the Geological Survey. Said approvals may be oral in emergency situations or in instances such as subsurface plugging programs for newly-drilled dry holes or failures. Any oral approval so received must be followed by a written application and approval thereof for confirmation. Likewise, the terms and conditions of an approved permit and surface use plan may not be altered unless the Geological Survey has approved an amended or supplemental permit and/or plan covering any such modifications. Approval of subsequent operations is addressed in Section V. of this Notice.

II. Drilling Operations

A. Preliminary Environmental Review

A preliminary environmental review is required on all future drilling operations prior to entry on the ground for the purpose of staking the location, access roads, and other surface use areas. The lessee or operator, upon finalizing plans to drill but prior to the actual surveying, must file with the Geological Survey's District Engineer and the appropriate office of the involved Federal surface management agency, a topographic map, or such other map as is acceptable to the District Engineer, scale not less than 1 inch = 1 mile which shows the preferred location and the general topographic features in the area. This will permit the Federal suface management agency, prior to the lessee's or operator's expenditure of time and money for surveys, to review its records for any potential conflicts with other resource values. If conflicts are noted, a joint conference or field inspection, as appropriate, by the Geological Survey, the Federal surface management agency, the lessee or operator, and other interested parties may be scheduled to resolve problem areas. If the lessee or operator has not been advised to the contrary within 15 days from the date of submitting the preliminary map, it may assume that there are no objections to entry on the land for the purpose of required surveying and staking and may proceed accordingly. It is anticipated that the need for a joint field conference and/or inspection prior to staking will be very unusual.

B. Application for Permit to Drill

Drilling operations must not be conducted without a permit which has the prior approval of the District Engineer. Although multiple wells may be covered in a single surface use plan, the application for permit to drill must be submitted on an individual well basis.

The permit application filed for approval will consist of Form 9-331C (Application for Permit to Drill, Deepen, or Plug Back) and a multi-point surface use and operations plan. Where private surface is involved, it should also include a copy of the written agreement between the lessee or operator and the surface owner, a letter from the lessee or operator setting forth the rehabilitation requirements agreed to with said owner, or a letter stating the reasons why such agreement is not obtainable. The requirements for surface use and operations plans and the rehabilitation of private surface are contained in Sections III. and VI., respectively, of this Notice.

The application for permit to drill must provide information concerning (1) the location, as determined by a registered surveyor, in feet and direction from the nearest section lines of an established public land survey or, in areas where there are no public land surveys, by such other method as is acceptable to the District Engineer; (2) the elevation above sea level of the unprepared ground; (3) the geologic name of the surface formation; (4) the type of drilling tools and associated equipment to be utilized; (5) the proposed drilling depth; (6) the estimated tops of important geologic markers; (7) the estimated depths at which anticipated water, oil, gas, or other mineral bearing formations are expected to be encountered; (8) the proposed casing program including the size, grade, and weight of each string and whether it is new or used; (9) the proposed setting depth of each casing string and the amount and type of cement (including additives) to be used; (10) the lessee's or operator's minimum specifications for pressure control equipment which is to be used, a schematic diagram thereof showing sizes, pressure ratings (or API series), and the testing procedures and testing frequency; (11) the type and characteristics of the proposed circulating medium or mediums to be employed for rotary drilling and the quantities and types of mud and weighting material to be maintained; (12) the testing, logging, and coring programs to be followed with provision made for required flexibility; (13) any anticipated abnormal pressures or temperatures expected to be encountered or potential hazards such as hydrogen sulfide gas, along with plans for mitigating such hazards; (14) the anticipated starting date and duration of the operation; and, (15) any other facets of the proposed operation which the lessee or operator wishes to point out for the Geological Survey's consideration of the application. The District Engineer will require additional information as warranted.

A copy of the approved application for permit to drill and the accompanying surface use and operations plan along with any conditions of approval shall be available to authorized personnel at the drillsite whenever active construction or drilling operations are underway.

III. Multi-Point Surface Use and Operations Plan

A surface use and operations plan in sufficient detail to permit a complete appraisal of the environmental effects associated with the proposed project must be submitted, in triplicate, to the District Engineer with the application for permit to drill.

The Geological Survey will send a copy of such plan to the Federal surface management agency. When possible, a preliminary field development plan or drilling schedule concerning the lessee's or operator's plans for additional development should also be submitted to allow lead time for evaluating environmental considerations, resource conflicts, and land use planning alternatives.

The surface use and operations plan shall, in its context, provide for adequate protection of surface resources, other environmental components, and include adequate measures for rehabilitation of disturbed lands. The plan shall be developed in conformity with the provisions of the lease, attached stipulations, and the guidelines provided by this Notice. In developing the plan, the lessee or operator will make use of such information as is available from the Federal surface management agency concerning the surface resources, environmental considerations, and local rehabilitation procedures. The plan will be reviewed for adequacy by the Geological Survey and the Federal surface management agency. The Geological Survey will act as the lead agency in assessing the effects of the plan. If the plan is considered inadequate, the Geological Survey will, in consultation with the Federal surface management agency, require modification or amendment of the plan or otherwise set forth such stipulations or conditions of approval as are necessary for the protection of surface resources and environment, including rehabilitation of the disturbed areas.

A. Guidelines for the preparation of surface use and operations plan

In the preparation of surface use and operations plans, lessees and operators should submit maps, facility layouts and narrative descriptions which adhere closely to the following:

1. Existing roads. A legible map (USGS topographic, county road map, or such other map as is acceptable to the District Engineer and the Federal surface management agency) shall be used for locating the proposed well site in relation to a town or other locatable reference point. The proposed route to the location including appropriate distances from the reference point to the point where the access route exits the highway or county road shall be shown. All proposed access roads shall be appropriately labeled or color coded. Additionally, all existing roads within a radius of three miles (including information relative to the type of surface, condition, and load capacity) from the location of a proposed exploratory well should be shown. For the purpose of this Notice, an exploratory well is defined as a well which is located two miles or more from the boundary of a Known Geologic Structure (as such term is defined by USGS) or a producible well. For all other drillsites (development wells), existing roads within a one-mile radius of the location should be shown.

   Any plans for the improvement and/or maintenance of existing roads should also be stated.

   Information required by item Nos. 2, 3, 4, 5, 6, 7, and 9 of this subsection may also be shown on this map if appropriately labeled.

2. Planned access roads. Information in this regard is to be submitted on a map of suitable scale and shall appropriately identify all permanent and temporary access roads that are to be constructed, or reconstructed in connection with the drilling and production of the proposed well. Width,

maximum grade, turnouts, drainage design, location and size of culverts, and surfacing material, if any, shall be stated. At the time of submittal, the center line location of all proposed new or reconstructed roads shall be staked with the stakes being visible from any one to the next. However, modification of proposed road design may be required after the location is accepted for drilling. If the well is completed for production, final road design and construction will depend on the amount and type of hydrocarbon found by the well. Information should also be furnished to indicate where existing fences will be cut and whether gates or cattleguards will be used. Additionally, the discussion should make reference to any existing gates which are to be replaced by cattleguards. Cattleguards which are installed or replaced must be designed to adequately carry anticipated loads.

3. Location of existing wells. This information should be submitted on a map of suitable scale and include all wells (water, abandoned, temporarily abandoned, disposal, and drilling) within a two-mile radius of the proposed location of an exploratory well and all wells (water, producing, abandoned, temporarily abandoned, shut-in, injection, disposal, and drilling) within a one-mile radius of the proposed location of a development well.

4. Location of tank batteries, production facilities, and production, gathering, and service lines. Existing tank batteries, production facilities, and production, gathering, or service lines within a one-mile radius of the proposed location which are owned or controlled by the lessee or operator should be shown on a map or plat of suitable scale. The type of each present facility and the exact nature of each existing line (oil flow line, gas gathering line, injection line, or water disposal line) should be identified and it should be noted which, if any, of said lines are buried. If new facilities (tank battery, other production equipment, and lines) are contemplated in the event production is

established and those facilities are to be located at other than on the well site itself, the map or plat furnished in this regard must also indicate the location of all proposed new facilities. The dimensions of these facilities, the proposed construction methods and materials, and the protective measures and devices to be employed to minimize hazards to livestock, waterfowl, and other wildlife will be stated. The approximate center locations of all production facility locations and the center lines of proposed gathering and service lines will be staked. A plan for rehabilitation of all disturbed areas no longer needed for operations and maintenance will also be submitted. Future prospects for additional development of the leasehold should be considered in the siting of new facilities. However, final approval to construct such new facilities will not be granted until after detailed plans have been submitted and evaluated pursuant to Section V. hereof.

5. Location and type of water supply (rivers, creeks, lakes, ponds, and wells). This information may be shown by quarter-quarter section on a plat or map of suitable scale or may be a written description. The source of all water to be used in drilling the proposed well must be noted if located on Federal or Indian land or if water is to be used from a Federal or Indian project. The method of transporting the water shall be stated, and any access roads crossing Federal or Indian land needed to haul the water will be described in item Nos. 1 or 2, as appropriate. However, the Survey's approval of the surface use and operations plan does not relieve the lessee or operator from obtaining any other authorization which may be required for the use of such water. Moreover, if a water supply well is to be drilled on the lease, it must be so stated under this item, and the District Engineer may require the filing of a separate application for permit to drill.

6. Source of construction materials. This information may be shown by quarter-quarter section on a plat or map of suitable scale or may be a written description. The proposed source (if located on Federal or Indian land), character, and use of all construction materials such as sand, gravel, stone, and soil material should be stated. Any access roads crossing Federal or Indian land needed to haul such materials should be described in item Nos. 1 or 2, as appropriate.

7. Methods for handling waste disposal. A brief, written description should be given of the methods and location proposed for safe containment and disposal of each type of waste material (cuttings, garbage, salts, chemicals, and sewage) which results from the drilling of the proposed well. Likewise, the narrative should include plans for the eventual disposal of drilling fluids and any produced oil or water recovered during testing operations.

8. Ancillary facilities. The plans or subsequent amendments to such plans shall identify all ancillary facilities such as camps and airstrips as to their location, land area required, and the methods and standards to be employed in their construction. Such facilities shall be shown on a map of suitable scale. The approximate center of proposed camps and the center line of airstrips shall be staked on the ground.

9. Well site layout. A plat of suitable scale (not less than 1 inch = 50 feet) including cross section diagrams of the drill pad showing all cuts and fills and the relation to topography are required. The plat should also include the proposed location of the mud tanks, pits (reserve, burn, and trash), pipe racks, access roads, turnaround areas, parking areas, living facilities, soil material stockpiles, and the orientation of the rig with respect to the pad and other faciities. Plans, if any, to line the reserve pit should be indicated.

Until such time as the location is approved, it will be necessary to stake only the actual location of the well.

After approval and before construction commences, the exterior dimensions of the pad and reserve pit will be staked on the ground. The stakes should be appropriately marked to indicate proper cuts and fills to the dirt contractor.

10. Plans for restoration of the surface. State the proposed program for surface restoration upon completion of the operation such as determination of the reshaped topography, drainage system, segregation of spoils materials, surface manipulations, waste disposal, revegetation methods, soil treatments, and amendments, plus other practices necessary to rehabilitate all disturbed areas including any access roads no longer needed. Such plans will be reviewed for adequacy by the appropriate Federal surface management agency. A proposed timetable for the commencement and completion of rehabilitation operations must be provided.

11. Other information. Include a general description of the topography, soil characteristics, formation lithologies, geologic features, flora, fauna, and other aspects of the area such as other surface use activities. The surface ownership (Federal, Indian, State, or private) at the well location and for all lands which are to be crossed by newly constructed or upgraded roads should be indicated.

Any other available information which is considered by the lessee or operator as being useful to the Geological Survey and Federal surface managing agency in evaluating the environmental impact of the proposed operation, including proximity to steep hillsides and gullies, water wells, ponds, lakes, or streams, occupied dwellings, or other facilities, and archeological, historical, or cultural sites, should be included.

Information concerning required cuts and fills during the construction of roads and the location and all construction practices necessary to accommodate potential geologic hazards should be discussed under the appropriate items of the plan.

12. Lessee's or operator's representative. Include the name, address, and phone number of the lessee's or operator's field representative who is responsible for assuring compliance with the approved surface use and operations plan.

13. Certification. The following statement is to be incorporated in the plan and must be signed by the lessee's or operator's field representative who is identified in item No. 12 of the plan:

> I hereby certify that I, or persons under my direct supervision, have inspected the proposed drillsite and access route; that I am familiar with the conditions which presently exist; that the statements made in this plan are, to the best of my knowledge, true and correct; and, that the work associated with the operations proposed herein will be performed by ______________________________ ______________ and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved.

______________ ______________________

Date Name and Title

IV. Environmental Analysis Requirements

If a preliminary inspection was not made prior to staking, an onsite inspection will normally be required following the filing of the application for permit to drill. If made, it will include representatives of the District Engineer, the lessee or operator, the Federal surface management agency, and such other interested parties as the lessee's or operator's dirt contractor. The purpose of this inspection will be to select the most feasible and environmentally acceptable areas for well sites (considering geologic factors and Federal and State regulations), access roads, and other proposed surface use areas. Accordingly, lessees and operators are encouraged to designate their future development or drilling sites so that several locations may be inspected at one time.

When such an inspection is made, an Environmental Analysis will usually be prepared by the office of the District Engineer. Said analysis will identify methods for mitigating the potential adverse environmental effects associated with the proposed operation and will be the basis of the approving official's determination as to whether approval of the proposed activity would constitute a major Federal action significantly affecting the quality of the human environment as defined by Section 102(2)(C) of the National Environmental Policy Act of 1969. Any surface protection and rehabilitation requirements specified by the Federal surface management agency will normally be made a part of any subsequently approved permit and/or the surface use and operations plan.

Due to the probability of an onsite inspection, the required input from other Federal agencies, and the variations in the level of drilling activity, lessees and operators are encouraged to file applications well in advance of the time when it is desired to commence operations.

V. Approval of Subsequent Operations

Before repairing, deepening, or conditioning a well, i.e., work that will involve change in the original or plugged back depth, casing arrangement, and/or present producing interval(s) including separation or commingling, a detailed written statement of the plan of work must be filed on Form 9-331A or 9-331C with the District Engineer and approval obtained before the work is started. Any proposed change in any such plan of work must also receive the prior approval of the District Engineer. Routine well work such as pump, rods, tubing and surface production equipment repairs will not require submittal of Form 9-331A unless specifically required by the District Engineer.

Lessees and operators are also required to submit for the approval of the District Engineer a suitable plan prior to undertaking any subsequent new construction, reconstruction, or alteration of existing facilities, including roads, dams, lines or other production facilities on any lease when additional surface disturbance will result. However, emergency repairs may be conducted without prior approval provided that prompt notification is provided to the District Engineer. Sufficient information must be submitted to permit a proper evaluation of the proposed surface disturbing activities as well as any planned accommodations necessary to mitigate potential adverse environmental effects.

The environmental analysis procedures discussed in Section IV. of this Notice will also apply to such subsequent operations which have the potential for significant surface disturbance although these requirements may be somewhat less in established producing areas.

VI. Agreement for Rehabilitation of Privately-Owned Surface

Where the surface is privately owned or is held in trust for Indian benefit, each application for permit to drill or to conduct other surface disturbance activities, shall contain information concerning the private surface owner's or Indian rehabilitation requirements. A written agreement between the lessee or operator and the surface owner is not necessary if a letter from the lessee or the operator setting forth the surface owner's rehabilitation requirements is furnished. In those cases where it is impossible or impractical to obtain the private surface owner's or Indian rehabilitation requirements, a letter from the lessee or operator describing the situation will be acceptable. Payment of damages in lieu of full restoration will not be an acceptable substitute for a normal cleanup and rehabilitation program.

If no arrangements have been made, or if information concerning such arrangements is not furnished, the District Engineer will request the appropriate Federal agency to recommend the necessary surface restoration requirements. In such cases, the lessee or operator will be expected to comply with these rehabilitation requirements, if any, regardless of the arrangement made with the surface owner. Provided, however, that subsequent reasonable requests by the surface owner that pits, roads, and other facilities be left intact may be honored. If written proof of prior arrangements has been provided, the appropriate Federal agency will be asked to recommend surface rehabilitation requirements to the District Engineer giving full consideration to the preferences of the landowner.

VII. Well Abandonment

No well abandonment operations may be commenced in the absence of the prior approval of the District Engineer. In the case of newly drilled dry holes or failures and in emergency situations, oral approval may be obtained from the District Engineer subject to confirmation by written application. For existing wells not having an approved surface use plan, a sketch showing the disturbed area and roads to be abandoned along with rehabilitation plans must be submitted with the application. However, the Federal surface management agency may request additional surface rehabilitation measures at abandonment and, these requirements are normally made a part of the Geological Survey's approval of abandonment. Upon completion of the abandonment and rehabilitation operations, the lessee or operator should notify the District Engineer that the location is ready for inspection usually via an additional Sundry Notice. Final abandonment will not be approved until the surface rehabilitation work required by the drilling permit or abandonment notice has been completed and the required vegetation is established to the satisfaction of the appropriate Federal surface management agency.

VIII. Water Well Conversion

The complete abandonment of a well which has encountered usable fresh water will not be approved if the Federal surface management agency wants to acquire the well. If, at abandonment, the Federal surface management agency elects to assume further responsibility for the well, it will reimburse the lessee or operator for the cost of any recoverable casing or well head equipment which it requests to be left in or on the hole solely because it is to be completed as a water well. The lessee or operator will abandon the well to the base of the deepest fresh water zone of interest as required by the District Engineer and will complete the surface cleanup and rehabilitation as required by the drilling permit or abandonment notice immediately upon completion of the conversion operations.

APPENDIX E

RESPONSES TO SOLICITATIONS FOR COMMENTS

Letter Sent To Persons, Groups, and Agencies Requesting Comments E-1

Persons, Groups, and Agencies From Which Comment Was Requested E-2

Responses E-3 - E-20

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Ochoco National Forest
P.O. Box 490, Prineville, Oregon 97754

October 7, 1976
8310

INVITATION TO PARTICIPATE

To Whom It May Concern:

The Ochoco National Forest in conjunction with the Prineville District Office of the Bureau of Land Management is in the process of preparing an Environment Analysis Report concerning the effect of oil and gas leasing and possible development on the area shown on the enclosed map. There are several applications for leases within the area and it is anticipated additional applications will be received.

Factors which will be considered in the preparation of the Environmental Analysis Report are impacts on air, land, water, vegetation, animals, landscape, social and cultural interests, and others. If you have any comments on the effect of oil and gas leasing and the possible development on the environment of this area, we would appreciate your comments by November 5, 1976.

Please send your comments to:

Forest Supervisor
Ochoco National Forest
P.O. Box 490
Prineville, Oregon 97754

Sincerely,

GLEN HETZEL
Forest Supervisor

PERSONS, GROUPS, AND AGENCIES FROM WHICH COMMENTS WERE SOLICITED

A. Oil and Gas Lease Applicants

1. Brewer, Larry & Karen
2. Evencore, Paul D.
3. Hancock, Dale E.
4. Hansen, Deryl
5. Harrison, Irene S.
6. Harrison, Robert P.
7. Hutchins, Myron
8. Johnson, Joseph J.
9. Matteson, Ruth M.
10. Morbeck, Eleanor
11. Rietkerk, William A., Jr. and Albert J. VanDalfsen
12. Sheets, Martin M.
13. Simons, Howard M.

B. Organized Groups

1. Audubon Society of Oregon
2. Corvallis Center for Environmental Services
3. Friends of the Earth, Inc.
4. Gray Butte Grazing Association
5. Izaak Walton League
6. Museum of Natural History
7. N.W. Environmental Defense Center
8. Oregon Environmental Council
9. Oregon High Desert Study Group
10. Oregon Historical Society
11. Oregon Museum of Science and Industry
12. Oregon Student Public Interest Group
13. Oregon Wildlife Federation
14. Sierra Club, Pacific N.W. Chapter
15. Survival Center, ASUO
16. Warm Springs Confederated Tribe
17. Wilderness Society

C. Government or Quasi-Government Agencies

1. Bonneville Power Administration
2. City of Culver
3. City of Madras
4. City of Metolius
5. City of Prineville
6. City of Redmond
7. Crook County Court
8. Crook County Planning Department
9. Deschutes County Board of Commissioners
10. Deschutes County Planning Department
11. Jefferson County Court
12. Jefferson County Planning Department
13. Oregon Department of Fish and Wildlife - Prineville Office
14. Regional Forester - U.S. Forest Service
15. State of Oregon Clearing Office - For distribution to appropriate state agencies.
16. U.S. Bureau of Reclamation
17. U.S. Environmental Protection Agency
18. U.S. Fish and Wildlife Service - Division of Ecological Services
19. U.S. Fish and Wildlife Service - Division of River Basin Studies
20. U.S. Geological Survey - Pacific Area.
21. U.S. Soil Conservation Service

OCTOBER 25, 1976

MR. HETZEL:

I HAVE NEVER BEEN IN CENTRAL OREGON SO I CANNOT EXPRESS AN EDUCATED OPINION OF THE ENVIRONMENTAL EFFECTS OF ANY OIL DRILLING.

HOWEVER, I HAVE BEEN INTERESTED IN THE OIL AND GAS PROSPECTS OF CENTRAL OREGON SINCE 1968. AS PART OF THIS INTEREST I HAVE BEEN TRYING TO GET MY LEASE ISSUED BY THE GOVERNMENT FOR YEARS WHILE THE DELAYS IN PROCESSING THE LEASE NEVER SEEM TO END. THEREFORE, I WOULD LIKE TO ASK YOU TO PROCEED WITH YOUR ENVIRONMENTAL SURVEY WITH ALL POSSIBLE SPEED.

VERY TRULY YOURS,

Larry L Brown

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DIST. 1, 2, 3, 4, 5
BFZ
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Robert F. Harrison
4710 University Way N. E.
Seattle, Washington 98105
October 19, 1976

OCT 21 1976
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✓ Hardt

Mr. Glen Hetzel
Forest Supervisor
Ochoco National Forest
P.O. Box 490
Prineville, OR 97754

Dear Mr. Hetzel:

In response to your letter of October 7, 1976, in which you requested comments on the environmental consequences of oil and gas development in central Oregon, I am enclosing for your review a letter I just sent to William Hardt of your office concerning the same subject.

I phoned your office last week before I got your letter and Mr. Hardt was the one who gave me the latest status on the leases. Therefore, when your letter arrived, I hastily reviewed it and didn't realize until today that he hadn't signed it. Please forgive the oversight.

Sincerely yours,

Robert F. Harrison

Robert F. Harrison
4710 University Way N. E.
Seattle, Washington 98105
October 18, 1976

OCT 20
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Mr. William Hardt
U.S. Department of Agriculture
Forest Service
Ochoco National Forest
P.O. Box 490
Prineville, OR 97754

Dear Mr. Hardt:

This is in response to your letter dated October 7, 1976 in which you asked for comments on the effect oil and gas drilling will have on the environment of the Crooked River National Grassland.

My interest in exploring for oil and gas in this part of Oregon dates back to the 1960's, and I have probably taken as many as fifty trips to the Prineville - Madras area. In 1968 I attempted to deepen an exploratory well on Sec. 18, T12S,R15E,WM in Jefferson County, Oregon. Although I failed in my first attempt, I want to make a further effort to determine the oil and gas potential of the area.

Many of the other oil and gas leases you referred to were filed by people I know who share my opinion about the possibility of finding oil or gas. However, in most cases they are not familiar with the terrain or the environmental impact of any drilling activity. As a result, some of them have asked me to speak in their behalf on this subject.

It is my opinion that if adequate precautions are taken while a drilling program is underway and if the area around the drill site is returned essentially to the condition which existed before the drilling program began, that no adverse impact whatsoever will occur to the environment.

It is my understanding that this land was bought by the government in the 1930's because the government had declared it "submarginal" for farming. Most of it is good only for range land and I am informed that cattle need about six acres a head per month for grazing. In that event, any drilling would have little, if any, effect on the cattle population. There is practically no water in the area and about the only recreational interest relates to hunting. You might, however, want to establish certain precautionary measures with regard to the Crooked River Nat'l Grasslands Field Hdqrts in N½NW¼, Sec. 34, T12S,R14E,WM and the electric power station which, I believe, is in NE¼SW¼, Sec. 35 of the same township. With regard to trees, there are a few juniper trees up there but these have no value as timber and, in fact, they are sometimes removed by the ranchers since they limit the range capability of the land. To sum it up, I do not think that the environment in this part of Oregon can be adversely affected if standard field practices are followed during any drilling activity.

I am glad that you are at last getting around to making your Environment Analysis Reports for Central Oregon. It is disturbing, however, that you should decide to do the environmental survey on Texaco's leases before ours. I say this specifically because the BLM is getting ready to raise the cost of leasing and it looks like Texaco will be able to sneak in under the old rate while we small fry , after years of trying to get these leases, may now have to pay the higher rate. Therefore, your maximum effort would be appreciated.

Sincerely yours,

Robert F. Harrison

Seattle Wash.
Oct. 14 1976

Sir,s,

In reply, I have been associate with Mr. Rob. Harreson of Seattle promotion and develope oil drilling in the area.

I agree with Mr. Harreson and his associates in the developing oil drilling in an orderly manner.

Respectfuly

Myron W. Hutchens
16004. 7 ave S W
Seattle 98166

OCT [illegible] 1976
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18302 - 9th N.E.
Seattle Wash 98155

27 Oct. 1976

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W. F. Hetzel
Forest Supervisor
Prineville Ore.

Dear Sir:-

In answering ~~E~~ your letter of Oct 7. 1976. first Please excuse this Long Hand as I do not have access to a Typewriter.

I first became aquainted with the Morrow #1 project in 1952 or 53, at that time I got a couple Leases from Mr. Bob Morris who was the Head of a small group of investors. My leases ran out a few years ago, Mr. Morris since passed away.

I am now associated with Mr. Bob Harrison and one of a small Group. who have faith as to its potential, after years of trying- I was successful in the Drawing for Parcel #6 for which I am grateful to once again be involved in a venture I believe in. I am an 100% Disabled Vet. and feel strongly that there is Oil there.

its just a matter of effort till its a reality.

In August 1958 I visited the Morrow #7 site & was quite impressed but also did notice that the Area was very sparse, very Dry - a few trees and livestock - it could have been an exceptionally dry spell at that time - I dont know.

Mr. Hetzel: I do not believe that there will be any environmental problems by drilling - True: one person can dig a small Ditch & leave a Mess - which I am sure will not happen. Our group feel very strong that with the necessary precautions, the site be kept neat & maintained as close to what the Area was in the beginning.

I sincerely hope that I have satisfactorily answered your letter and that very soon I may be able to secure my lease, its been a long time without one.

I understand that the Lease rental may

go up. I hope not but if it does -
I will still be grateful.
I hope this helps towards a speedy
decision. I remain

Yours Sincerely
Joseph J. Johnson.

**FIRST NATIONAL BANK
OF DULUTH**
Duluth, Minnesota 55801
218/723-2765

Trust Department

BANCO

October 26, 1976

Mr. Glen Hetzel
Forest Supervisor
Ochoco National Forest
PO Box 490
Prineville, OR 97754

Dear Mr. Hetzel:

Re: Guardianship of Ruth M. Matteson

Please accept this letter as your authorization on behalf of Ruth M. Matteson to conduct your survey in the area indicated on the Section Map which you recently forwarded to us.

I am sure that you will follow the suggestions outlined by Mr. Robert F. Harrison in his letter to Mr. William Hardt of October 18, 1976.

Yours very truly,

L. H. Duncan,
Corporate Trust Officer

de

cc: Mr. Robert F. Harrison

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BGMZ
FILE
✓ Hardt

4807 - 200th St. S.W.
Lynnwood, Washington 98036
October 20, 1976

Forest Supervisor
U. S. Department of Agriculture
Forest Service
Ochoco National Forest
P. O. Box 490
Prineville, Oregon 97754

Dear Sir:

Over a year ago, Albert J. Van Dalfsen and I applied for a U. S. Government oil and gas lease in Jefferson County, Oregon. Apparently you have now started an environmental survey of this area.

Unfortunately, we cannot be of much help to you during the conduct of this survey. However, there have been so many delays which have prevented the government from issuing this lease, that we thought this would be a good opportunity to request that you establish a top priority for the accomplishment of this work.

Very truly yours,

Wm Rietkerk Jr.

William A. Rietkerk, Jr.

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Bill, please respond

MARTIN M. SHEETS
1973 W. GRAY, RM. 4
HOUSTON, TEXAS 77019
-
TELEPHONE: 523-1975

GEOLOGIST
PETROLEUM CONSULTANT

ENVIRONMENTALIST
ACTIVE SURFACE FAULTING

October 26, 1976

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Mr. Glen Hetzel
Forest Supervisor
Ochoco National Forest
P. O. Box 490
Prineville, Oregon 97754

Dear Mr. Hetzel:

Thank you for your letter of October 7, 1976. After many years experience in and around many oil and gas fields in Texas and Louisiana, in all sorts of circumstances from swamps to forested hills, with virtually no environmental controls, I can assure you that the benefits of oil and gas production far outweigh any ill effects from them.

Short term, during drilling, there is of course some disturbance of the environment but, even without controls, nature learns to live with such activities very quickly. Many things, such as roads built, wind up being a great help. Long term, the effects of oil and gas production are negligible and soon become undiscernable. Mother Nature is remarkably resilient. I'm sure there are many old dryhole locations in Oregon, drilled without controls, which could be checked for environmental damage.

Careful but reasonable and workable rules should certainly be set up and enforced, with supervisors given as much discretion as possible. Under these circumstances, there is no reason whatever why the state of Oregon should be denied the great benefits of its own indigenous supply of oil and gas.

The pictures enclosed show a few typical oil field scenes in Louisiana and Texas, where wildlife abounds along with domesticated animals.

I am grateful for the opportunity to comment on a subject I know so well as an oil man and environmentalist. If I can be of any further assistance, I'd be pleased to hear from you.

Yours sincerely,

Martin M. Sheets

MMS/mm

Howard M. Simons
1035 N. E. 89th Street
Seattle
Washington 98115

October 28th 1976

Mr. Glen Hetzel
Forest Supervisor
Ochoco National Forest
P.O Box 490
Prineville
Oregon 97754

Dear Mr. Hetzel;

May I first thank you for your letter of October 7th 1976, and your interest in my behalf.

I am a stock holder in the Harrison Trust Leases since the early 1971 and very much interested in the success of the leases.

In additional to my interest and investments I made an application for 80 acres last Febuary 6th 1971, on Febuary 9th 1971 I received a receipt for my application, serial # OR 7531, from the Oregon State Office; P.O Box 2965; Portland Oregon.

However after I have written twice I have not received the lease I have applied for. There is nodoubt in my mind but what there are problems that I know nothing about that has caused the delay.

Thanking you again for your interest in my behalf and, I am wishing you all the best in your Enviroment Analysis Reports for the Central Oregon, trusting your reports will be in our favor.

Mr. Hetzel; please note my change of address;
Old address; 4710 University Way N.E.
Seattle
Washington 98105

New address; 1035 N.E. 89th Street
Seattle
Washington 98115

Sincerely yours
Howard M. Simons
Howrad M. Simons

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United States Department of the Interior

BONNEVILLE POWER ADMINISTRATION
P.O. BOX 3621, PORTLAND, OREGON 97208

OFFICE OF
THE ADMINISTRATOR

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In reply refer to: AJ

November 4, 1976

Mr. Glen Hetzel
Forest Supervisor
Ochoco National Forest
P.O. Box 490
Prineville, Oregon 97754

Dear Mr. Hetzel:

In response to your letter of October 7, 1976, Bonneville Power Administration has the following facilities located within the Prineville area:

500-kV Grizzly Substation
2 500-kV PNW-PSW interties from John Day Dam to the Oregon border
a 230-kV line from Maupin to Redmond
± 400-kV D-C Intertie from Celilo to the border
500-kV line from Grizzly to Round Butte Dam (owned by PGE)

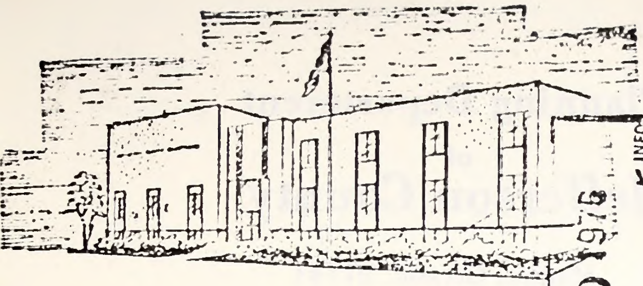
Future BPA plans include a possible third 500-kV intertie line that would parallel the existing lines and a ± 500-kV D-C line that would parallel the existing D-C Intertie.

The addition of the high voltage lines should be considered concerning oil and gas leasing and possible development in this area.

We would appreciate receiving a copy of the Environmental Analysis Report when it is completed.

Sincerely yours,

E. Willard
Assistant to the Administrator -
Interagency Relations



Planning Department
of
Jefferson County
Madras, Oregon 97741

December 8, 1976

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Forest Supervisor
Ochoco National Forest
P.O. Box 490
Prineville, Oregon 97754

Dear Sir:

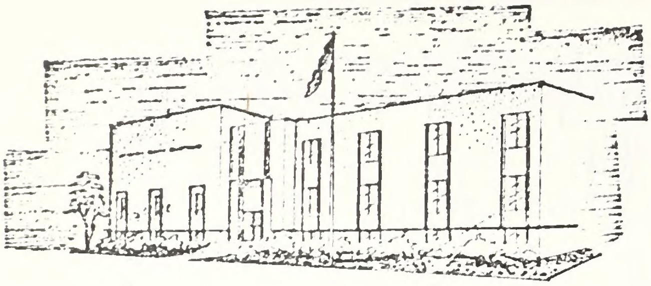
In response to your invitation for comment on the effect of oil and gas lease applications in Jefferson County, I have contacted Mr. Ted Freeman, Chairman of the County Planning Commission. He suggested we convey the following comments.

In brief, the County would like to be kept informed of what is happening in the area; would appreciate hearing on land use changes in the area and would like a copy of the Environmental Analysis Report.

It is anticipated that the temporary housing for drill crews, if in the area, will be in accord with County and State regulations. If no oil or gas is found, the area would be restored to its original condition, as much as possible, at the conclusion of the exploration.

If some subsurface resource is found, and development does occur in the area, then the county would expect to be involved in this planning.

Much of the private land inside the National Grassland Boundary is zoned either Exclusive Farm Use A-1 or General Agriculture A-2-40. Uses allowed in an A-1 are allowed in the A-2-40. Oregon Revised Statute (ORS) 215.213 permits the establishment of certain non-farm uses, subject to the approval of the governing body of the county. One such use is the "operation conducted for the mining and processing of geothermal resources as defined by ORS 522.005 or exporation, mining and processing of aggregate and other mineral resources or other subsurface resources." It is my understanding that oil and gas fall in the catergory of "other subsurface resources." If the exploration for oil and gas expands to private lands adjacent to the Grasslands, approval would have to be granted by the County Court, after a preliminary review and recommendation by the County Planning Commission.



Planning Department
of
Jefferson County

Madras, Oregon 97741

December 8, 1976

Page 2

Thank you for the opportunity to respond to the question.

Sincerely,

Bryan Christian

Bryan Christian
Planning Director

BC:clz

9 - 21 - 76
P.S.R. Box 5
Prineville, Ore.

Bill Hardt
USFS Supervisors Office
Prineville, Oregon

Subject Oil & Gas Leasing on National Grasslands

I have a few recommendations to make on potential wildlife impacts from oil and gas leasing.

1- Keep roads and drilling activities away from following: Raptor nests, Antelope kidding areas, May 1 - June 1, spring or other water developments, Willow creek and deer winter range during Nov. 15 - May 1.

2- Keep drilling residues away from Willow Cr, Mud Springs Creek and other drainages that might carry pollutants to major drainages.

3- Avoid road construction in stream bank areas.

Harlon N Scott

Bill - I wouldn't recommend using these dates -
raptors come early & select nest sites (before May 1)
and disturbance may affect some species w/ young
during June. therefore - I recommend that
April 15 thru July 1 that no disturbance
around known nesting sites be allowed.
BC

K.E.R.

OREGON PROJECT NOTIFICATION AND REVIEW SYSTEM

STATE CLEARINGHOUSE

Intergovernmental Relations Division
240 Cottage Street S.E., Salem, Oregon 97310
Leslie Lehmann, Coordinator Phone: 378-3732

PROJECT ACKNOWLEDGEMENT

APPLICANT: U.S. Forest Service

PROJECT TITLE: Oil & Gas Leasing in Ochoco Nat'l. Forest

DATE RECEIVED: October 11, 1976

PNRS #: 7610 5 1670

Your project has been assigned the file title and number that appear above. Use this reference in all future correspondence regarding this project.

☐ Initial 30-day State Clearinghouse review of your Notice of Intent began on the above date.

☐ The 30-day State Clearinghouse review of your final application began on the above date.

☐ Initial 30-day State Clearinghouse review of this HUD Housing project began on the above date.

☒ XXX Initial 30-day State Clearinghouse review of your Direct Federal Development project began on the above date.

☐ The 30-day State Clearinghouse review of your final Environmental Impact Statement began on the above date.

☐ Initial 45-day State Clearinghouse review of your draft Environmental Impact Statement began on the above date.

☐ The 45-day State Clearinghouse review of your State Plan/ Amendment began on the above date.

If you have questions or need assistance, contact the State Clearinghouse at the above address and telephone number.

OCT 20 1976

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OREGON PROJECT NOTIFICATION AND REVIEW SYSTEM

STATE CLEARINGHOUSE

Intergovernmental Relations Division
240 Cottage Street S.E., Salem, Oregon 97310
Leslie Lehmann, Coordinator Ph: 378-3732

STATE A-95 REVIEW CONCLUSIONS

APPLICANT: U. S. Forest Service

PROJECT TITLE: Oil & Gas Leasing in Ochoco Nat'l. Forest

DATE: 11/10/76

The state has reviewed your project and reached the following conclusions:

☒ No significant conflict with the plans, policies or programs of state government have been identified ~~and your proposal is endorsed as presented.~~

☒ Relevant comments of state agencies are attached and should be considered in the final design of your proposal.

☐ Potential conflicts with the plans and programs of the state agency(s) have been satisfactorily resolved. No significant issues remain.

☐ Significant conflicts with the plans, policies or programs of state government have been identified and remain unresolved. The final proposal has been reviewed and the final comments and recommendations of the state are attached.

NOTICE TO FEDERAL AGENCY

The following is the officially assigned State Identifier Number:

7610 5 1670

This number should be used on all correspondence and particularly on SF 240 as required by OMB A-98.

OREGON PROJECT NOTIFICATION AND REVIEW SYSTEM

STATE CLEARINGHOUSE

LOCAL GOVERNMENT RELATIONS DIV
OCT 27 1976

RECEIVED-PTLD
OCT 19 1976
DEPT OF GEOLOGY & MINERAL INDUS

Intergovernmental Relations Division
240 Cottage Street S.E., Salem, Oregon 97310
Leslie Lehmann, Coordinator Phone: 378-3732

PNRS STATE REVIEW

Project #: 7610 5 1670 Due Date: NOV 05 1976

To Agency Addressed: If you intend to comment but cannot respond by the return date, please notify us immediately. If no response is received by the due date, it will be assumed that you have no comment and the file will be closed.

PROGRAM REVIEW AND COMMENT

To State Clearinghouse: We have reviewed the subject Notice and have reached the following conclusions on its relationship to our plans and programs:

( ) It has no adverse effect.

( ) We have no comment.

(✓) Effects, although measurable, would be acceptable.

( ) It has adverse effects.

( ) We are interested but require more information to evaluate the proposal.

( ) Please coordinate the implementation of the proposal with us.

( ) Additional comments for project improvement. (Attach if necessary)

- - - - - - - - - - -

REMARKS (Please type or print legibly)

We have contacted the Prineville District Office of the US BLM earlier on the proposal.

Agency Geology By V.C. Newton
Petroleum Engineer

OREGON PROJECT NOTIFICATION AND REVIEW SYSTEM

STATE CLEARINGHOUSE

Intergovernmental Relations Division
240 Cottage Street S.E., Salem, Oregon 97310
Leslie Lehmann, Coordinator   Phone: 378-3732

OCT 27 1976

PNRS STATE REVIEW

Project #: 7610 5 1670 Due Date: NOV 05 1976

To Agency Addressed: If you intend to comment but cannot respond by the return date, please notify us immediately. If no response is received by the due date, it will be assumed that you have no comment and the file will be closed.

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( ) Additional comments for project improvement. (Attach if necessary)

- - - - - - - - - - - -

REMARKS (Please type or print legibly)

(X) Please see attached page.

RECEIVED
OCT 20 1976
[illegible] ENERGY

Agency Energy By David Philbrick

DEPARTMENT OF ENERGY

528 COTTAGE STREET N.E. • SALEM, OREGON • 97310 • Phone 378-5581

ROBERT W. STRAUB
GOVERNOR

October 25, 1976

TO: State Clearinghouse

FROM: David Philbrick

SUBJECT: Project # 7610 5 1670 Remarks

I have compared the proposed lease locations with conclusions of the Statewide Siting Task Force report of July, 1974. According to the determinations made in the siting study, the lease area is well suited for such development. In the environmental analysis report our agency is interested in information on what future distribution and refining facilities would be needed if the proposed leases were successfully developed.

DP:ks

David Philbrick
Environmental Specialist

OREGON PROJECT NOTIFICATION AND REVIEW SYSTEM

STATE CLEARINGHOUSE

Intergovernmental Relations Division
240 Cottage Street S.E., Salem, Oregon 97310
Leslie Lehmann, Coordinator   Phone: 378-3732

LOCAL GOVERNMENT
RELATIONS DIV
NOV 1 1976

PNRS STATE REVIEW

Project #: 7610 5 1670 Due Date: NOV 05 1976

To Agency Addressed: If you intend to comment but cannot respond by the return date, please notify us immediately. If no response is received by the due date, it will be assumed that you have no comment and the file will be closed.

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( ) It has adverse effects.

( ) We are interested but require more information to evaluate the proposal.

(X) Please coordinate the implementation of the proposal with us.

( ) Additional comments for project improvement. (Attach if necessary)

- - - - - - - - - - - -

REMARKS (Please type or print legibly)

Department of Fish and Wildlife staff has been participating in the analysis of fish and wildlife associated with the proposed oil and gas exploration.

We request that coordination with our department continue through our district biologists (Ed Schwartz and Harlan Scott, 447-5111, Prineville).

Agency Fish & Wildlife By William E. Pitney
ENVIRONMENTAL MANAGEMENT SECTION 10/28/76

NATURAL AREA PRESERVES ADVISORY COMMITTEE

1445 STATE STREET • SALEM, OREGON • 97310 • Phone 378-3805

OREGON STATE LAND BOARD

ROBERT STRAUB
Governor

CLAY MYERS
Secretary of State

JAMES A. REDDEN
State Treasurer

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WILLIAM S. COX
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GLENN P. JUDAY
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DR. DAVID McCORKLE
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MRS. A. C. SIDDALL

LOCAL GOVERNMENT
RELATIONS DIV

NOV 5 1976

November 3, 1976

Leslie Lehmann, Coordinator
Intergovernmental Relations Division
240 Cottage Street S.E.
Salem, OR 97310

Dear Mr. Lehmann:

A State Clearinghouse Project Notification concerning oil and gas leasing on the Crooked River National Grassland, Ochoco National Forest (#7610 5 1670) was recently routed to me from the Division of State Lands. The Natural Area Preserves Advisory Committee is aware of three parcels of land in the vicinity, two outside and one within the lease area boundaries, which are reported in our inventory of state-owned lands to have some natural area values.

The largest and most outstanding is "The Island," occupying portions of sections 3 and 10, T12S, R12E in the Cove Palisades State Park. It is an isolated plateau at the junction of the Deschutes and Crooked Rivers. It has been isolated by its steep topography with cliffs surounding all sides. The track is recognized as an outstanding example of two plant communities, Western juniper/Bitterbrush/Bluebunch wheatgrass and Western juniper/Big sagebrush/Bluebunch wheatgrass. Two important scientific publications have been based upon work in this area (Driscoll, 1964a, 1964b). The area has been nominated to become a national natural landmark. The parcel is 4-6 miles west to northwest of the lease area boundaries. Assuming any significant oil or gas finds were made, one would expect activity on immediately adjacent private lands. Major impacts would probably be increase air pollution, especially sulfur oxides, and increased visitor use generated by increased population.

A second parcel located immediately adjacent to the lease area boundary is the Peter Skene Ogden Scenic Wayside, part of section 32 T13S R13E. This small tract includes riparian vegetation in good condition, Big sagebrush/Bluebunch wheatgrass and Big sagebrush/Idaho fescue on talus slopes, and Western juniper/Big sagebrush/Bluebunch wheatgrass on a small area of upland.

The last area is a piece of state-owned land within the lease area boundaries, section 6, T12S, R14E. It is reported to be slightly more disturbed than the other two areas, and represents a Western juniper savanna in the Big sagebrush/Bluebunch wheatgrass type with some rabbitbrush. Some riparian habitat, important for wildlife in the semi-arid region, is also present.

Of these three parcels, the only one that I would estimate our committee would be interested in proposing as a preserve would be "The Island." Without field checking, which we have not a had a chance to do for the other two areas, it is difficult to make a definitive statement. There is no necessary reason that a program of exploration and careful development would have to interfere with the natural area values of these three tracts. Air and water quality standards would be the key to mitigating direct impacts and local land use planning the key to controlling indirect impacts.

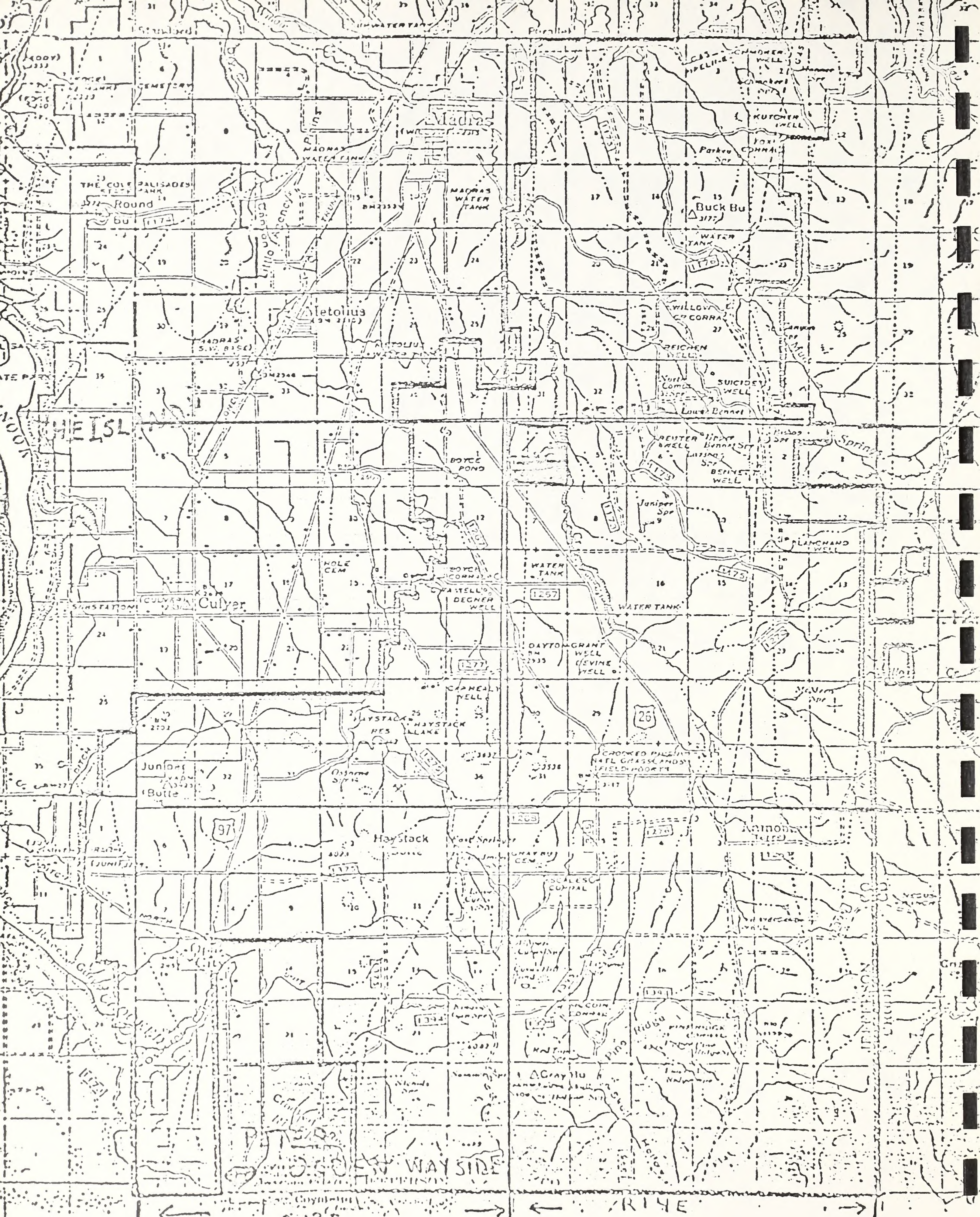
Sincerely,

Glenn Patrick Juday

Glenn Patrick Juday
Chairman, Natural Area Preserve
 Advisory committee
Department of Geography
OSU
Corvallis, OR 97331

Driscoll, R. S. 1964a. A Relict Area in the Central Oregon Juniper Zone. Ecology 45:345-353.

Driscoll, R. S. 1964b. Vegetation-Soil Units in the Central Oregon Juniper Zone. USFS Res. Paper PNW-19. p. 60.


Madras
Round Bu
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Culver
Juniper Butte
Haystack Butte
Buck Bu
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Boyce Pond
Crooked River Natl Grasslands Field Hdqrts
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Pine Ridge
Opal City
Water Tank
Willow Cr Corral
Suicide Well
Lower Bennet
Juniper Spr
Kutcher Well
Parker Spr
Madras Water Tank
The Cove State Park
Palisades
Gas Pipeline
Cemetery
Hole Cem
Dayton Grant Well
Devine Well
Degner Well
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Reichen Well
Water Tank
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26
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Wayside
R13E
R14E

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
16th Floor, 1220 S. W. Third, Portland, Oregon 97204

November 9, 1976

Mr. Glen Hetzel, Forest Supervisor
Ochoco National Forest
P. O. Box 490
Prineville, Oregon 97754

Re: NF-BLM Environmental Analysis Report
Oil & Gas Lease, East Side Crooked
River National Grassland

Dear Mr. Hetzel:

I have forwarded your letter and map relative to the above analysis report to our Area Office in Bend, Oregon.

Our Bend office will contact you if they are aware of any impacts your proposal will have on Soil Conservation Service activities.

Thank you.

Guy W. Nutt

Guy W. Nutt
State Conservationist

cc:
W. J. Cox, Bend AO (w/attachments)

NOV 12 1976
X ACTION ✓ INFO
F.S.
A.O.
B&F
CONTRACTING
FLEET MGMT
OFFICE SERVICES
PERSONNEL
RESOURCE
TIMBER
ENG.
RANGE
WILDLIFE
FIRE, R&L
DISPATCH
I&I
L.U.P.
DIST. 1, 2, 3, 4, 5
BFZ
BBMZ
FILE

Bruce Hansen
3646 S.E. Martins
Portland, Ore. 97202

Forest Supervisor
Ochoco National Forest
P.O. Box 490
Prineville, Ore. 97754

Dear Sir,

I recently heard that you were asking for comment on proposed oil and gas leases on the Crooked River National Grassland. I would appreciate receiving any information on this proposed activity.

Thankyou,

Bruce Hansen

OCT 21 1976

F.S.
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10627 Rainier Ave S.W.
Tacoma Washington 98499
November 3, 1976

Glenn Hetzel
Forest Supervisor
Ochoco National Forest
P.O. Box 490
Prineville, Oregon 97754

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OCHOCO NA
PRINEVIL

Dear Mr. Hetzel

I understand from your letter of October 7 to oil and gas prospectors that you will accept comments relative to a USFS enviromental survey of the prineville area, specifically the Crooked River National Grassland.

I have been holding leases and otherwise investing in an area of Jefferson County, Ranges 14 and 15 E Twp 11, 12 + 13 for about 15 years, and thus have a vested interest in getting a quick and favorable Response so that we may continue our efforts. Aside from this, however, is the subject of recreational use, and completely independent of my earlier statement I can sure make a comment about that:

We would not have gotten to the Area except for our exploration effort. We do a lot of hiking, camping and related activity elsewhere but would not do so in that area. I can tell you though, that we did try once, with Terrible Results: Specifically, The first time I took my wife and kids there, we drove for hours, finally got there — and the whole family refused even to get out of the car. I've been there many times since, but alone.

This is not to say they dont love outdoor recreation. There are beautiful areas beginning just a few dozen miles West, or South, I suppose you have to go through the motions of assessing the potential of our drilling area, but frankly I dont see why anyone would possibly find or enjoy the particular area when there are so much superior areas elsewhere.

I dont mean to bad mouth your state, because we love Oregon. But if you have to assess this particular area I recommend you just wrap it up so we can all get on to more important things.

Thanks for the opportunity to comment.

Sincerely

R. A. Silness

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U. S. Bureau of Land
Management. Prineville
Environmental analysis
report for oil and gas

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